The Film in Education

BY THE SAME AUTHOR:

Films—the Way of the Cinema

The Art of Film Production

Peace through Film

Film and the Future

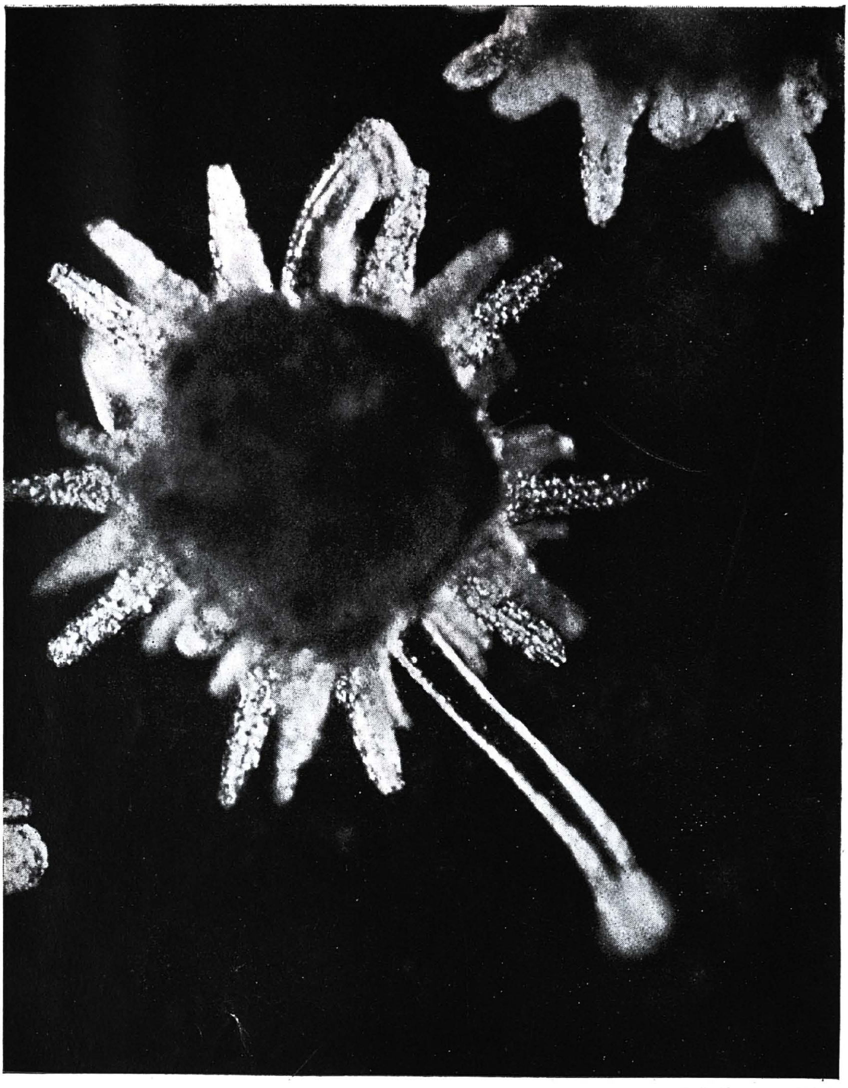
Going to the Cinema

Film-making from Script to Screen

Visitation

★

He Died Again



G-B Instructional Ltd

Film enlarges and reveals life hitherto visible only under the microscope.
A cinemicrographic and time-lapse scene from The Development of the Sea Urchin, *1937.*
Directed by H. R. Hewer. For biological classes, 15 *and over.*

The Film in Education

Andrew Buchanan

D.LITT., PH.D., F.R.S.A.

INTRODUCTION BY J. A. HARRISON

PH.D.

☆

WITH 51 PHOTOGRAPHS

MESTON TRAINING COLLEGE

PHOENIX HOUSE LIMITED

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Director of the Educational Foundation for Visual Aids, London
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FOREWORD

by J. A. Harrison, Ph.D., Director of the Educational Foundation for Visual Aids, London

In education one is primarily concerned with the film as a visual aid to teaching. Few will question the importance of this particular role but undue concentration on any one aspect of the film is liable to lead to a somewhat narrow approach and a tendency towards insularity. It seems to me that much is to be gained, even by those with specialist interests, by considering broadly the many and varied aspects of the use of the film in education. Such an approach enables one not only to see the problems as a whole but to learn from the experiences in one field and to apply them in another.

To me, the value of this book lies in this approach by the author. He assumes no barriers or watertight compartments and interprets both education and the educational film in the widest sense. Special problems are dealt with but they fall into perspective as part of a whole.

It would be out of place, in a brief foreword, to attempt to refer in any detail to the content of the book. Indeed it would be impossible to do so for a book of such scope and thorough treatment. Much of the material is factual; where views are expressed they are, of course, entirely those of the author and not necessarily those of the Educational Foundation for Visual Aids or myself.

The author has asked me, as Director of the Foundation, to refer to its newest development, the Library Scheme, otherwise the Association of Education Committees Scheme for Film Distribution. This scheme has two objects; to encourage local education authorities to build up their libraries, and to provide for supplementary hiring to the schools. Under this scheme local education authorities make a block payment to the Educational Foundation for Visual Aids, which enables all the schools in their area to use the Foundation Film Library.

Clearly this scheme has the additional advantage that separate accounting for the hire of each film is avoided, and the schools can

obtain their films by a simple library card system. At the time of writing it is quite evident that this scheme appeals to both the local education authorities and the schools, and many authorities have adopted it. It is one further step in simplifying the procedure by which a school can obtain the film it wants for a particular lesson.

In my opinion the author has made a real contribution to our knowledge of the film in education, and this book can be strongly commended. I am sure that many will not only read it, as I have done, with considerable interest, but will find that it proves to be most valuable for reference purposes.

May, 1951

AUTHOR'S PREFACE

From Blackboard to White Screen. . . .

Film has brought movement to the diagram; life to the map; realism to the classroom.

Even so, we are just on the threshold of education by film, and the intention of this book is to survey past and present progress of visual aids, seek to separate achievements from errors, and point to the future.

I write as a producer of educational and specialized films; *not* as an educationalist. My work has given me wide experience of educational film requirements, ranging from simple subjects for the young to analytical, highly detailed films for scientists, doctors, engineers, and students of theology. Being just outside, yet linked to, the educational world, I have become familiar with both teachers' and producers' viewpoints. Sometimes educationalists make demands on producers with little knowledge of the complex medium they seek to employ. Similarly some producers of long experience, having made little or no study of educational requirements, find difficulty in supplying teachers' needs—for to be technically proficient is not quite enough where visual aids are concerned.

Other educational film planners think and speak almost exclusively in terms of age-groups and numbers, sometimes appearing to forget they are catering for individual human beings who do not necessarily think alike, or react according to plan, even though some would like them to do so.

In this film-going civilization, few children are unfamiliar with cinema programmes. Immediately a film appears in a classroom, they compare it, probably unconsciously, with highly polished entertainment films, often to the disadvantage of the former, for although educational films to-day reach high technical standards, some of them are lifeless, stilted, and move unnecessarily slowly. There is no good reason why educational films should not be fascinating, inspiring—even exciting. And so, just as the producer may have to go to school again, the educationalist needs to make a close study both of production and presentation.

The dividing line between classroom and cinema is thin. More educational films in cinemas, and more cinematic appeal in classrooms would seem desirable.

I have here treated education in its widest sense, embracing references to every type of instructional film within and beyond the classroom. In doing so, however, I was faced with the problem of classifying numerous types of films which seem to fit just as easily into two or more categories. I have tried to distinguish between the educational, the instructional, the training, and the informational film. Therefore, to reduce overlapping to a reasonable minimum, I begin by defining the educational film, and discuss in general its purposes, advantages, and limitations, and examine some of its uses in classroom and university. Then I have widened the field and surveyed films for specialized purposes—medicine, science, art, etc. Having thus introduced the subject in general terms, I have described in detail the history of the educational film in this country, tracing its development during the last quarter of a century. This is followed by a survey of progress in other countries, prefaced by an examination of the film work of UNESCO, and then I deal with the educational film first in the Commonwealth and then in all the other countries which have also contributed to the advancement of visual aids.

I have revised the plan for the book several times. I began by covering all activities in this country before surveying progress abroad, but found the overlapping and large number of cross-references an obstacle. Then I sought to make a chronological survey of events irrespective of the countries in which they occurred, but all essential data could not be gathered in a way to make this approach possible. Finally, I sketched out the framework I am now describing, and upon which I built the book.

And so, having defined the educational film, described developments in specialized fields, traced its history in this country and overseas, I have discussed in detail the planning, production, and distribution of visual aids, and examined the work of the National Committee for Visual Aids and the Educational Foundation for Visual Aids.

Then I have dealt with the question of presentation, for, even given the right type of teaching films in sufficient numbers, everything depends upon how they are introduced, projected, and afterwards discussed. After such technical aspects I include a symposium of opinions on visual aids from teachers in various parts of the country, and summarize their conclusions.

Finally, I have discussed the effect of entertainment films *on* children—a subject very closely related to educational films *for* children—and described the difficulties experienced by producers of films for the young, and their achievements.

My conclusion is not in the prophetic manner, but summarizes current problems, financial and technical, and perhaps suggests certain measures which might facilitate the production of educational films in the future.

The major difficulty in writing a book of this character is the ever-changing nature of the film industry affecting all branches within it. Conditions prevailing at the commencement of a chapter may well have been superseded by others before the end is written. New productions which justify detailed appraisals often appear too late for inclusion. Whilst, therefore, I have sought to keep pace with events, rather than leave every chapter open for last minute insertions or deletions, I have preferred to concentrate on fundamentals so that the book may prove of value indefinitely.

I should like to express great indebtedness to Pinda Lloyd-Jones for her invaluable research into this complex, many-sided subject, to Malcolm V. Hoare, B.Sc., F.B.K.S., F.I.B.P., Technical Adviser to the Kay Film Printing Company, Ltd, for his description of the film laboratory, and to J. W. Piper for his help in compiling practical hints on projection. I am also grateful to the Australian National Film Board, the Canadian National Film Board, the High Commissioner for New Zealand, and the South African Education Department for material about the educational film in those countries.

London, August 1951 ANDREW BUCHANAN

MESTON TRAINING COLLEGE MADRAS

Chapter I

LEARNING THROUGH THE EYE

FILM IS peculiarly suited to the needs of the scientific twentieth century. It has provided the human race with its most popular form of entertainment. It has given man his most flexible, most powerful method of expressing and circulating ideas, beliefs, and information. In speed of presentation, film can rival thought itself, or, as the cynic said, make thinking unnecessary. It can project with equal ease vast panoramas and minute organisms. It can bring together the farthest ends of the earth, making travellers of us all. Past, present, and future lie within its scope. A faithful recorder of actuality, it is also the interpreter of dream worlds and fantasy. It offers movement, colour, natural sound, and music, in endless diversity. Its potential influence on our thought, taste, and conduct is greater than many of us realize.

Consider the range of its uses—entertainment—information—propaganda—historical record—education.

The immense appeal of the entertainment film is mainly attributable to pictorial narration. The mind soaks up subject-matter on the screen as effortlessly as a sponge soaks up water. This direct appeal and easy assimilation; this stimulating of the emotions, and (though less frequently as far as the entertainment film is concerned) of the brain, provides one of the main arguments for the wider use of film in education. It can re-create history, give reality to statistics, illuminate difficult formulae, explain the mysteries of nature, and bring the atlas to life.

The function of film in education is to add to man's sense of reality by adding the faculty of sight to the faculty of abstract apprehension. To *see* the things of which we learn completes, or almost completes, our study. The eye can often teach that which no words can convey.

However, education by film should not be regarded as an easy substitute for the patient acquisition of knowledge. It can facilitate learning, but the student should never lose his ability to learn through the written word, nor forget the need for a disciplined mind. Film can strengthen present teaching methods; it cannot supersede them.

Every film—musical comedy, history, travel, fantasy, or news—imparts information of some kind. There is thus some educational value in many commercial cinema programmes—widening our knowledge of other countries and customs, acquainting us with music, literature, and drama. But such material is often over-dramatized or over-popularized, giving a false or one-sided representation.

However, useful or useless, constructive or pernicious, film infects and shapes the mind to a remarkable degree, even though in the cinema it is not concerned with education at all. The educationalist would find it interesting to ask himself whether a film such as *The Song of Bernadette* has not a definite educational value for people who would not go to see a strictly educational non-fictional film about the history of Lourdes. He might well try to discover how much educational value there is in, say, *The Grapes of Wrath*, *Hamlet*, *The Overlanders*, and such short commercially released documentary series as 'This Modern Age' and 'The March of Time' which probe into contemporary problems. Screen adaptations of great literary works—by Shakespeare, Brontë, Dickens—may not satisfy the purists, but they possess distinct educational value despite the fact they have been shaped in a dramatic or melodramatic mould to appeal to and entertain millions of people who, in most cases, cannot be classified as serious readers, and who are beyond the reach of the purely educational film. However, throughout this survey, only when the sole purpose of a film is to impart knowledge to people, young or old, who have assembled to learn, but not to be entertained, can it be classified as educational.

I use the term 'educational film' in a broad sense to cover every kind of informational film, but more narrowly to describe the academic film—whether simple, for children, or calling for a high academic level—as distinct from the demonstrational and training film, which is usually referred to under the heading of 'instructional'. Though the various types of educational films overlap, I will try to group them under separate headings to facilitate study.

1. *Classroom films.* Films on any subject made for use in schools.
2. *Further education classroom films.* Those made for use in training colleges, evening institutes, and similar establishments for adult education. They differ from the classroom film only in that they call for more sophisticated treatment.
3. *Lecture films.* Intended for use in universities, research institutes, and other centres of more advanced academic learning.

4. *Research films*. The highest form of teaching film, for specialized classes of research workers, teachers, scientists, doctors, engineers—containing information of an advanced kind on anthropology, sociology, physics, biology, history. Such films might well be described as visual monographs.

It will be seen that, in its various forms, the educational film is a visual textbook, ranging from the simplest presentation of fact to the most advanced and academic. Indeed, the simile of the textbook is worth remembering, for then the various grades of teaching films fall more easily into place.

The instructional film demonstrating how to perform specific tasks may come into either of the first two categories listed above. There are also instructional films which come into other categories, such as those dealing with the performance of civic duties. Instructional films, other than those for the classroom, can be divided broadly into three categories:

1. Films made to instruct certain groups with common specialized interests in various professions, trades, or civic activities. Audiences composed of, say, nurses, domestic science students, gardeners, welfare workers.

2. The training or career film, which shows what certain jobs involve to enable young people to select a career. Further films in the same category will teach them how to become skilled in the profession or trade selected—building, engineering, bakery, dressmaking, civil aviation; the scope is endless.

3. Films to instruct *mixed* audiences on how to perform certain duties in the public interest—hygiene, child welfare, first aid, rescue work, road safety, and so on.

In this chapter I shall refer only to classroom and university films in any detail. Films for special adult audiences outside scholastic institutions are the subject of Chapter II.

CLASSROOM FILMS

Film in the classroom can illustrate and inform upon matters difficult to describe verbally, and bring the first-hand knowledge and, indeed, the personalities of specialists to schools however remote. It has been accepted in every type of primary and secondary school, and has been found of special value in dealing with backward children who can be taught more easily through the eye than by verbal or written instruction. As we shall learn in the right

place, the classroom film is being supported by the film strip, the loop,[1] and by charts and models.

Classroom films can be divided into three main groups. First, films which teachers employ to give their pupils a general background knowledge of a subject. These usually cover a wide canvas and their purpose is less to instruct than to provide a basis for instruction. For instance, in geography such films can provide vivid backgrounds of little-known regions or countries. To many city pupils a country town market day is as unfamiliar as is, say, the city of Lisbon. And so under this heading would come such a film as *Market Town*, which gives a lively impression of market day in a Nottinghamshire town—or *Lowland Village*, which presents a sketch of a typical Suffolk village and life on its surrounding farms.

The second group can best be described as supplementary to the textbook and the verbal instruction of the teacher. It is *not* complete in itself, of course, but adds realism to verbal and/or written tuition. These films are often quite short, and cover such diverse subjects as *Lumbering*, *Egyptian Irrigation*, or *The Tower Bridge*. An example of the history-teaching film within this category is *The Beginning of History*, which is an introduction to the origins of civilization and the history of the British Isles from the Stone Age to the Roman Conquest. It includes several fascinating demonstrations, such as flint-chopping, and reaping, and hoeing with stone implements, and contains, too, scenes of field monuments, relics in museums, models, and animated maps.

It is an example of the film which can teach more clearly than any textbook. It shows how early man lived, and it enables the teacher to deal with a subject which, so remote in time, might very easily become extremely boring to young minds. It is this ability of film to bring back the past as excitingly as it can present the world to-day which makes it so valuable a medium for the classroom.

The third group consists of films which are complete in themselves. They contain all essential information on a subject, and focus attention on salient points. This class of film deals with one specific subject, comprehensively, and, preceded or followed by a discussion, forms a lesson in itself. An example is *The Development of a Rabbit*. It shows how various species develop, proceeding from the simple cell division of the embryo sea urchin, through the simplest types of egg-laying mammals to the embryology of the rabbit. Here, the development of the embryo is clearly illustrated by dissections and animated diagrams.

[1] For further references to the strip and loop, see pp. 21, 155–7.

Also within this class is *The Life Cycle of Pin Mould.* Here, a combination of micro-photography and time-lapse photography (scenes filmed automatically at regular intervals by a stationary camera) enable us to see the mould actually growing, and we are able to watch a single spore branching out under the microscope, with heads containing new spores ripening. In this field film has no equal, of course.

Such biological films, supervised by eminent scientists, possess intrinsic value, and shed light on subjects which, save for static illustration by film-strip or lantern slide, could never otherwise be seen. The use of the diagram[1] is notable. Arrows change position in perfect time with the descriptive commentary. Shading appears and disappears at exactly the right moments. Thus the attention is directed to this and that point and held there until redirected. The visuals are instructing through the eye whilst the commentary instructs through the ear, and, if skilfully produced, this dual approach to the brain will not confuse it, though that could very easily occur if the visuals were too rapid, or the commentary incessant or overloaded with verbal detail. In such films as *Earthworms* and *Sea Urchin*, there are sequences in which *both* diagrams and the object itself appear simultaneously on symmetrical halves of the subjects, so that whilst the student sees the object or creature as it is, he is also seeing an 'X-ray' picture of its construction.

The diagram is being found of special value in presenting historical subjects. History should teach the student to understand the development of processes or movements, whether economic, social, or political. It is the pattern and not the isolated event which needs to be conveyed. Thus, diagrams illustrate the story of *The Expansion of Germany after 1870*, and, with equal facility, explain how Britain's railway systems came into being and expanded. *Medieval Village* provides another good example of the use of the diagram in teaching history.

Such films, which show existing remains, such as the ruins of the Roman towns and encampments, or the utensils and weapons of prehistoric man, are fundamentally different, of course, from those which reconstruct historical events. The first deal with historic places, peoples, and objects as they actually existed, and, when no relics remain for illustration, use diagrams to trace the probable course of events, whilst the second, however carefully and 'faithfully' the events are reconstructed, must necessarily be artificial, and anything savouring of the theatrical in the classroom is of doubtful value.

[1] See pp. 71–2 for further description of diagram films.

Geographical films which constitute self-contained lessons include such varied subjects as *Farm Factory*, *Chile*, and *Cocoa from the Gold Coast*. The basic material of geography—mountains, lakes, vegetation, paddy fields, steppe, rivers, oceans—are all being brought into the classroom with a reality the photograph can never attain. Of equal importance is the natural movement which film presents. A child can be told that rubber is cultivated in Malaya but will rarely be able to visualize exactly how the rubber is obtained. When he is shown a film in which Malayans are seen at work, cultivating, tapping the trees, and transporting rubber, something vital has been added to his knowledge.

History is the writing down of the experience of mankind; geography, the writing down of the appearance of the world as man sees and experiences it; science, comprehension by observation, induction, and experiment, of nature and natural phenomena. Without movement, these subjects are difficult to teach. Film brings action, of the past and present, right into the classroom.

FILM IN FURTHER EDUCATION

The possibilities of a wider use of film as a teaching aid in the higher stages of education are a subject of considerable discussion among academicians to-day. The medium is unlikely to be generally adopted until greater interest is shown in the potentialities of the educational cinema by heads of faculties, lecturers, and other teaching staff, particularly on the Arts side. At present, some university teachers view with misgivings the new problems in teaching which film creates. Many tend to remain indifferent, and whilst willing to discuss the possibilities theoretically, are reluctant to embark upon or to encourage production.

Objections, to a large extent common to all types of teaching establishment, are taking longer to overcome in the university than in the school. Complexities of film-making—high production costs—the disturbing of existing teaching curricula—projection problems—are some of the difficulties cited. Academicians rightly point out that if a film is to be of real use, it must be produced to the exact requirements of the specialist-teacher, who, whenever possible, should be directly associated with the making of the film. They stress too, that film must never be regarded as a substitute for experiments a student should execute with his own hands or which his lecturer performs. The highly specialized and individual methods of university training, particularly in the fields of post-graduate

work, can never be replaced by films made for 'mass education'.

That epitomizes the general opinion of a large number of professors in this country, and there is considerable justification for the viewpoint. On the other hand, some academicians, particularly teachers of scientific subjects, believe that film can be, and indeed is proving to be, of great value, and can do more than merely assist them to achieve results which they now obtain by other methods. They consider that, in certain cases, film can *add* something new and important to the very way in which things are understood and learnt. A number of teachers of the natural sciences, in particular biologists, are already testifying to its value. The possibilities offered by film's ability to present actuality both in slow motion and ultra-rapid movement; to project life which becomes visible only under the microscope, to large audiences; to show plants growing by time-lapse photography; and to present moving diagrams, make it an invaluable aid in scientific teaching and research.

In this connection, both film and biological research remain forever in the debt of the late Dr R. G. Canti. Through his work it became possible, for the first time, to follow the changes in the cells of human brain tumours, and to study the life cycle of an ultramicrobe.

Rare processes in nature, and experiments which are difficult or impossible to repeat, are recorded by film, and projected in classroom and lecture hall. Films of the lives of butterflies have been shown, infinite patience having been employed to photograph incidents which the student of biology would never otherwise see.

In the chemical laboratory film can be of very special value when students are required to perform complex experiments and/or when the materials to be employed are scarce or expensive. It has been proved that both the demonstrator's time and the consumption of chemicals are saved when a film version of the required experiment is shown to students before they attempt it themselves. In such instances film is not a substitute for individual experiment but a working model to copy.

Similarly, in many branches of engineering, complicated assembly work is clarified by film. The magnification of sections of machinery, both being assembled and in operation, fix details in the memory of the student. In particularly complicated processes, the film loop, which runs continuously, is used to show certain mechanical movements over and over again.

Few, if any, suggestions appear to have been made by educational authorities as to the kind of subjects needed in higher and

more specialized branches of education, and so certain commercial producing concerns have made films on their own initiative, which, in most instances, have proved acceptable to educationalists. This does not seem to me the right way to organize a flow of films for advanced education purposes, for however skilled and enterprising a producer may be, he should be given definite details of requirements from an educational source. Research has shown me that there has not, as yet, been any recognized advisory source easily available to producers to inform them of future requirements of universities based on a definite policy.

In October 1944 there began an experiment of providing film periods in the regular time-table of all first-year students of the engineering departments of Cambridge University, and the Chairman of the Cambridge University Films Council, C. Dennis Pegge, has written that these 'cinema hours' were found to fulfil a useful purpose. Since October 1945, second-year students have also had a weekly cinema hour.

A great deal of research for 'reasonably suitable material' was found necessary to enable the engineering cinema hour project to develop, and about 350 films were viewed between October 1944 and October 1948. At the outset there were found to be hardly any engineering films made for the university student, and the position has not noticeably improved to-day. However, a considerable number of subjects of general engineering interest exists, though many were made for the general public, and are therefore somewhat superficial. Another group of subjects, amongst which were found some suitable for the university, had been made for specific training purposes, though a number were too particularized for students. Nevertheless, despite scarcity of material, a beginning was made, and valuable experience in the technique of teaching with film obtained.

The Cambridge Engineering Department's experiment has brought to light certain conclusions which apply to the whole field of university teaching with the aid of film.

The educational value of a film is greatly increased, it is stated, if its subject-matter has been considered in previous lectures. Therefore, the engineering department sought to link up films shown with the subject-matter of existing lectures and laboratory work, so far as limited supplies would permit. In some instances, films have been used to provide preliminary demonstration *before* laboratory work, but progress here has been hindered by lack of suitable material. However, interesting progress has been made in several directions.

Students, for example, who are required to strip a Diesel engine early in their first year, have received an introduction to the working principle and parts of the mechanism through the cinema course, and a number of background films in relation to lectures on materials have also been shown.

Sociological films have also formed part of the engineering programme, their use being justified by the close interrelation of modern society and the services of the engineer. A number of such films cannot conveniently be fitted into the lecture course, and yet have great value in widening the knowledge and experience of the student. For example, engineering students can with advantage study architecture and the aesthetics of design, workshop management, and the economics of production, just as it is desirable for agricultural students to have knowledge of biology outside their normal course, of the food industry, civic organization, and social problems. It is clear that, in most courses, matter exists *on the fringe of the subject*, which can often be introduced by film.

The engineering cinema hours at Cambridge have, until now, been periods of about forty-five minutes, and the several films constituting a programme have been joined together and projected, as far as possible, without any interval or 'light-up' periods. Brief verbal introductions have related the particular subject-matter of the films to the general field of engineering, as well as indicating the connections between the lectures and laboratory work. Out of a total of seventy-six films, seven only were silent, and nineteen linked up with lectures and/or laboratory work, the rest being background or 'fringe' subjects.

At the end of the Lent term, 1945, a questionnaire was circulated to students of the first year cinema course, and 132 answered as follows:

> 'Have you found the programmes interesting?'
> 129 answered 'Yes'.
> 'Have you found the programmes instructive?'
> 126 answered 'Yes'.

To a question regarding the length of a programme, the majority of students appeared to favour a longer period than forty-five minutes, thirty-six being in favour of one hour. Seventeen asked for films combining sociology and engineering. A further, more particularized, questionnaire on both the first and second-year cinema courses was submitted to some of the students at the end of the Lent term, 1946.

From the answers it became apparent that a large majority of

students derived both pleasure and benefit from the cinema hours.[1]

Certain points of general interest emerge from this experimental period.

First, regarding the sound track; although the majority of the above films were sound, it should not be inferred that silent films are considered inferior. Of the two elements of film concerned in teaching, the visual and the verbal, the first is a unique contribution and the latter largely supplies what can also be obtained through lectures and books. The former provides students with direct knowledge of reality; the latter with that 'literal analysis of our knowledge of reality constituting the vast bulk of normal education—that side of education which it is the function of visual aids to complement'. Since the visual contribution is unique, it would seem to be the more important element, and most teachers consider the sound track should be so designed as to allow the maximum attention to be paid to the visuals.

Specific instruction divorced from the subject-matter of current lecture courses was not found popular in the cinema hours. However self-sufficient and good a film may appear to be, employing diagrams, models, and commentary to explain a subject in detail, if it is unconnected with lecture subject-matter it is not appreciated.

At the Usher Institute, Edinburgh University, there is a two-hour film session every week for the fourth-year medical class in public health and social medicine. Cinema hours in agriculture, anthropology, geography, biology, engineering, estate management, colonial administration, and medicine might well be added to curricula, whilst students of economics could benefit from films showing industrial processes and dealing with social problems.

The experience of the Cambridge experiment, it is stated, confirms that there is a lack of films made *for* the university student. The solution, declares C. Dennis Pegge, lies in the hands of the universities themselves, for only when *they* undertake film production can the situation be radically improved. As with their books, the universities can perform a service not only for themselves but for the community at large. This view is common to the majority of academicians interested in the possibilities of employing film for university teaching, and was strongly expressed at the 1948 Scientific Film Associations' International Congress by G. Kitson-Clarke, M.A.

As I have intimated and shall show in greater detail, the problems

[1] Material cited from an article, 'The Cinema Hour in the University', C. Dennis Pegge, *Sight and Sound* (1948).

of making films are many. Production is an expensive business, particularly when recording is involved, and more so if a commercial firm is commissioned by a university to produce. Although a film made by professionals will, almost certainly, be *technically* superior to the amateur effort of an educationalist, there is much to be said for the latter's production, since he is actively engaged in teaching and researching into the subject to be filmed.

Distribution poses another problem, for until such time as universities possess their own film libraries they will have to hire from outside organizations. In this respect it is clear that the Central Film Library, the National Film Library (British Film Institute), the Foundation Film Library, and such large commercial concerns as Gaumont-British Instructional will continue to prove of great assistance.[1]

The adoption of film in university teaching has been slow, but the advocates of its use increase yearly. Interest in the matter has led to the setting up of the British Universities Film Council, under the chairmanship of Mr Kitson-Clarke, of Trinity, Cambridge, a pioneer in the use of teaching films in universities. The chief objectives of the Council at the present time include: the production of a comprehensive catalogue of films; the collection of information as to the types of film needed by universities; the provision of an advisory service on the availability and use of projection apparatus; the pooling of knowledge of film-making techniques, and of equipment.

Further evidence of the interest in film for university teaching was provided by the number of academicians who attended the discussion on the use of the medium held during the Scientific Film Associations' International Congress in 1948.

Mr Kitson-Clarke opened the discussion, declaring that universities should possess their own production facilities, and provide adequate storage space for film libraries. These facilities should be made available to all faculties in the university, and there should be inter-departmental and, later, inter-university collaboration in pooling experience and gathering information about film requirements.

Mr Kitson-Clarke drew a parallel with books. Universities possess their own presses and libraries; in the same way, they need their own film centres, and the catalogue of material useful to university teachers should be comprehensive, and based on international supplies. 'Footnotes' should accompany films, citing authorities for facts presented, in order that teachers might assess their value more critically. These problems of distribution and cataloguing are similar to those which for so long hindered development in schools, but are

[1] For a description of the functions of these bodies see Chapter 6.

now largely covered by the Educational Foundation Library and catalogues which are referred to later.

There was, declared Mr Kitson-Clarke, a great need for more films for university use, produced by the State, by commercial producers, and/or by the universities themselves. All sources of supply should be encouraged, but professional standards were essential. Much could be achieved by the universities, and teachers should be encouraged to make films both for their own specialized needs, and for experimental purposes.

Plans were further outlined by the Council's Secretary, Mr T. L. Green, of Manchester University, at the above Congress. He explained that his university intended to issue a pamphlet giving useful information for the guidance of those wishing to make their own teaching films, and it is also proposed to run a course in film-making for university people. Mr Green stated that the Council was fully aware of the need for research into the making and using of teaching films.

Professor H. R. Hewer, of the Imperial College of Science and Technology, discussing the value of film in teaching biology, said there is need to-day for short films of 50 to 100 feet, to illustrate specific points, and lecturers need extracts from research films which have been suitably edited for teaching purposes.

The uses of film in teaching anthropology were discussed by Dr Little, of the London School of Economics. He showed part of a film, *Thuringa*, dealing with the Australian aborigine, and explained how such films brought native peoples to life in the lecture room, and enabled students to study their living and social habits and environment. It is essential, he said, for anthropological films to be factual, and to avoid any tendency to romanticize their subjects.

A further contribution came from Mr R. A. Fairthorne, who spoke of the ability of film to create an imaginary event through its power of synthesis, by building up movement from single-frame exposures. This ability is valuable in teaching mathematics, and he showed a film which illustrated, by animated diagrams, the solution of the equation $x + x = 0$.

Dr J. Horner, of the University of Birmingham, showed how the movement of the tongue in speech had been illustrated by a film made for I.C.I. containing a combination of colour and black-and-white photography, taken at normal and ultra-high camera speeds. Production had been made possible through the co-operation of a hospital patient undergoing an operation which necessitated having part of his cheek removed, thereby revealing a side view of the

tongue. This film, said Dr Horner, has led to a complete revision of the theory of tongue movements in vowel formation.

Mrs H. Coppen, of London University's Institute of Education, showed part of *Education of the Deaf*, illustrating ways in which film can assist in training teachers who will be working with deaf children.

Films for training and instructional purposes were discussed by Commander Mills. He stated that there is need for further research into the most effective length of such films. He had had considerable experience in the war-time training of naval personnel, and was of the opinion that from eight to ten minutes of continuous showing constitutes the optimum period.

Contributions also came from overseas visitors. Dr G. Wolf, of the Institute for Film and Pictures, Hanover, stressed the need for closer co-operation between film-maker and user, suggesting that film was useful only when it could demonstrate a point more clearly than customarily used methods—a point often made by academicians, and emphasized by Mr Kitson-Clarke in an article on 'The Use of Films in Universities',[1] in which he says: 'The cinema must never be considered a substitute for experiments which a student must do with his own hands, or see his lecturer do in front of him. Film must never become an easy means of providing shoddy mass education. Gain in one faculty may mean loss in another. University students must still know how to acquire knowledge by reading difficult, and sometimes dull, books. The power to approach reality through words must never be lost.'

Mr L. P. Greenhill, of Australia, said that a visual aids centre had been established for over two years at the University of Melbourne, which has facilities for making films, strips, slides, and wall charts, and possesses an extensive library. It provides training for teachers in the use of visual aids in the classroom, and in the operation of projection equipment. The centre is also promoting research to discover more effective techniques for utilizing visual aids in teaching.

Since the Congress had been held to crystallize ideas about the collecting of information on films suitable for use in university teaching, and to consider ways in which the medium could most effectively be fitted into the educational scheme, the following resolution was passed, summarizing current opinion on the subject:

'This meeting considers that the establishment of a centre for the collection and distribution of information about films of use in universities throughout the world is an immediate necessity, and a prerequisite for any scheme of film exchange.'

[1] *The Listener*, 4 December 1947, p. 987.

Chapter II

FILMS FOR SPECIALIZED AUDIENCES

THE FILMS described in this chapter are those in the fourth category given on page 17; that is, lecture films and research films of one kind and another for audiences outside scholastic establishments.

Although the development of the educational film abroad is surveyed in Chapter IV, films on subjects of universal significance in which progress largely depends on the exchange of knowledge between countries must inevitably be dealt with on an international basis. Therefore I intend to describe here some of the notable contributions of, for instance, scientific and medical films from the Continent, Scandinavia, and the United States, with particular reference to the international conferences of the British Scientific Film Association.

Similarly, films made for groups within the community in Britain, such as those for farmers and engineers, while having a place in the story of the development of the educational film in this country (the subject of the next chapter) are inseparable from a discussion of films made for specialist audiences.

SCIENCE

Prior to 1939, little was known abroad about scientific British film production, with the exception of the work of a few specialists in Britain such as Dr Canti and Percy Smith.

Interest in the scientific film was first given direction in 1943, when the Scientific Film Association was founded and, after the last war and following the establishing of UNESCO, opportunities for the British movement to contact scientific film producers abroad increased.

In 1945, after the liberation of Paris, the British Association took part in a Scientific Film Congress arranged by French producers, which served to revive the annual meetings started in the early thirties by Jean Painlevé and Claoue. The British were particularly

well represented, their films forming the second largest group shown. They included Paul Rotha's *World of Plenty*, one of Percy Smith's 'Secrets of Nature' series, and *Scabies Mite* (Spectator Films), remarkable for its micro-photography.

The British output compared favourably with others, which included productions by the astronomer, Lyot, in collaboration with Leclerc, and the Italian *Morphology of Flowers*, demonstrating how stop-motion technique can record biological growth.

In addition to giving scientists the opportunity to see films from many nations, the Congress organized important discussions between the British and French producers on the possibilities of establishing an International Scientific Film Association.

By October 1946, when a second Congress was arranged by the French, considerable progress had been made with the idea, and it was decided to arrange a meeting in 1947 to be attended by representatives from as many nations as possible to discuss the foundation of an international organization. The preparations were entrusted to the British Scientific Film Association and the French Institut de Cinématographie Scientifique, whilst help and encouragement were promised by UNESCO.

The inaugural conference was held in Paris, and delegates from twenty-two nations attended. The Preamble of the Constitution of this new organization included the following:

'The Association believes that international understanding will be greatly helped through its members pledging themselves to the provision of certain practical and urgently needed services. Stated briefly, these are the freest, widest, and most efficient exchange of:

1. Information about the production, the use and the effect of all types of scientific films.

2. Films themselves, cinematic material, and the personal experience, stills, and the ideas of workers in scientific cinematography.'

The 1947 Conference clearly demonstrated how widespread was the interest in scientific film production and its related problems. Mr Basil Wright, on behalf of the British organization, stressed the need for increased information about films being produced by scientists all over the world, and he pointed to the need for the standardization of catalogues and lists, and for proper appraisal of scientific films. Customs formalities and other barriers hindering a smooth and speedy exchange of scientific films to and from the nations should be broken down, and everything done to co-ordinate the work of scientific film producers the world over.

More than fifty films were shown at the 1947 Congress, and it was agreed that the new international body should undertake the difficult task of giving them world-wide circulation. Among the productions designated for universal showing were: (U.S.A.) Hollinger's film on bronchoscopy; (U.S.S.R.) *Artificial Aesophagus*; (U.K.) Hughes's biological research studies on tissue culture and the viscosity of protoplasm (using phase-contrast microscopy and polarized light); Professor Pijper's thesis film on *The Motility of Bacteria*; and (Austria) Storch's slow-motion record of fresh water animaculae.

In an address to the gathering, Jean Painlevé put forward suggestions for international co-operation in scientific film production, and advocated an exchange of technicians. The Congress marked the definite beginning of an international film movement.

In October 1948 the third Congress met, this time in London. Organized by the Scientific Film Association, it provided a week of great activity including a three-day festival of films from the following countries: Argentine, Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, France, Great Britain, Holland, Italy, New Zealand, Norway, Poland, South Africa, Sweden, Switzerland, the United States, and the U.S.S.R.

The films were divided into six programmes.

From Australia came two productions, made by the National Film Board. *In the South Seas* described the work of a recent survey of the diet of the natives of the Trobriand Islands; these people are immune from many of the diseases common to the natives of other Pacific islands, and the survey was an attempt to discover the reasons for such immunity. The second film, *Turn the Soil*, traced the history of the Australian wheat industry, emphasizing its vital importance to the country, and illustrating the many improvements made over the years in various wheat varieties.

Professor Storch of Vienna University, celebrated for his work in the biological field, showed another of his films recording the movement of fresh-water animaculae.

Belgium contributed several important subjects including: Henri Storck's *Rubens*—a most interesting film in which the camera is made to analyse Rubens's technique—and *L'Oedéme de la Faim*, made by Dr Edgard Simonat of Louvain University, dealing with oedema produced by starvation, and cured by vitamin treatment. *Béton Précontraint*, by Professor Magnel of Ghent University, told the story of pre-cast concrete.

Canada contributed *Science Helps the Farmer*, produced in 1948

by the National Film Board, covering such fields of activity as soil, plant, and animal pathology, and animal husbandry, and *Inside the Atom*, made under the supervision of Dr Keyes, Dr J. C. Mackenzie, and General A. G. L. Naughton, Canada's representative to the Atomic Energy Commission of UNO; the film shows the precautions and complicated apparatus necessary when handling radioactive substances, and suggests the uses of radio-active isotopes for industry, agriculture, and medicine, and projects their potential use. The film also shows, in some detail, the location and cure of one type of cancer.

From Denmark came *Skrudtudsen*, which records the life cycle of the toad, showing its development from the tadpole through successive stages; *Kaalsommerfuglen*, tracing the evolution of the cabbage butterfly; and *Clinical Examination of Syphilitics*, an account of current methods adopted in that country.

The French *L'Oeuvre Biologique de Pasteur* provided a full-length study of the life and achievements of Louis Pasteur. It was produced in 1948 by Jean Painlevé, who made the micro-photographic sequences himself, and directed the scenes depicting Pasteur's experiments, whilst Georges Rouquier, who made *Farrebique*, directed the biographical reconstruction. The title role was played by an unknown Paris workman with a strong facial resemblance to the great scientist.

Among British contributions was the G.B.I. film *Atomic Physics* (Gold Medal, Venice Festival, 1948), which traces the progress of knowledge of the structure of the atom from Dalton's theory to the principles of nuclear fission. It is divided into five parts, and includes the recorded voices of such famous physicists as Rutherford, Einstein, Frisch, and Cockroft. Another was *Polio Diagnosis and Management* (Silver Medal, Venice Festival, 1948), made by the Crown Film Unit for the Ministry of Health, giving an account of the incidence of acute anterior poliomyelitis (infantile paralysis) in recent years, tracing the diagnosis, treatment, and rehabilitation of one particular case. Then came *Microscopy of Opaque Objects* (Realist Film Unit) dealing with the construction and use of the metallurgical microscope.

Notable among the Polish films was *Cracow in the Romanesque Epoch*, produced by the Polish Film Institute, presenting monuments of Romanesque architecture together with historical episodes connected with the buildings.

Switzerland sent two productions made by Kern Film of Basle: *The Way to the Invisible World*, a popular study of the electron

microscope, and *Substances Actives de Notre Vie*, a study of vitamins. Two additional short films on the latter subject dealt with the experimental production of beri-beri in chickens (a reproduction of Eijkman's 1875 test), and the development of the chicken embryo up to the tenth day under vitamin control.

From the U.S.A. came four ten-minute films from the 'Living Earth' series—*Birth of the Soil*, *His Vital Earth*, *Arteries of Life*, and *Seeds of Destruction*—and another, *Raindrops*, a thirty-minute study of the action of rain on the soil.

The Russian film, *Pavlov's Experimental Farm*—well-known to audiences in this country interested in the scientific film movement—was screened for the benefit of overseas visitors. Other Soviet films included *The World of Crystals* and *The Function of the Cell*, which by brilliant photography and enlargement illustrated the complicated processes occurring within an organism.

At this Congress lectures were given by distinguished scientists, and illustrated by films they had made, which pointed the way to future developments.

The functions of the film camera as a research tool are many, stated Sir Robert Watson-Watt, opening the Congress. It is a scientific observer, lacking many of the qualities of its master, but free from many of his limitations.

The camera can be an unobserved observer, producing no disturbances in the processes which it is watching, and is almost completely insensitive to the rigours of the climate around it. It is also immune from the fatigue which can spoil the work of the human observer.

Like the television camera, it can work and record from a very privileged viewpoint, and be used in places inaccessible to the human observer.

It has an unsleeping eye, and does not suffer from the confusion which persistence of vision gives in the human eye by superimposing successive scenes. It 'can do tricks with time', and in this lies its greatest utility as a research tool for scientists. It can act as a time expander, recording intimate details of a process lasting for a thousandth of a second, or even less, and can spread out its record to demonstrate the events of a few seconds over several minutes or hours. It can be used as a time-compressor, pictures taken once an hour being projected as a continuous film, telescoping the events of days or months into a few minutes' viewing-time.

Finally, by X-ray cinematography it can present a living record of processes within the animal body which are otherwise invisible.

An interesting lecture on time-lapse photography in scientific work was given by Dr T. E. Allibone. One of the most useful things the film camera can do for the scientist, he said, is to record happenings in what appears to be total darkness. This is made possible because of a photographic emulsion which can respond to light that is invisible to the human eye, such as ultra-violet light, or X-rays.

The conference had revealed how many subjects have been elucidated by film. Astronomers have known for years that large masses of incandescent matter are shot out of the sun and can be seen as solar prominences at the time of a total eclipse. But these eclipses are rare events, lasting only a few minutes, so that it has not been known how the solar prominences rise out of the sun, or at what speeds. But recent films have been made at an observatory in Colorado, using a very specialized technique, which gives what can be termed an artificial eclipse—pictures taken on film at minute intervals. When projected at an ordinary speed, the time scale of the events is compressed by about one thousand times, with the result that the film shows how the prominences rise nearly 500,000 miles out of the sun and then collapse into sun spots.

Moreover, since it is now possible to keep the sun under observation for hours on end, new effects have been discovered.

The chemist and the metallurgist have applied this new technique of photographing a phenomenon at spaced-out intervals and then projecting the film at normal speed to the study of the growth of crystals.

Time-lapse photography is also being used to observe such slow processes as the flow of glaciers, and the changes occurring in a block of glass or quartz during very prolonged annealing. The camera can watch, hour by hour, or week by week, and then present the record of what has happened so that the human eye can see it as a continuous process.

At the opposite end of the time scale the camera is invaluable for recording what happens in a few millionths of a second. A film can show the way a sheet of glass breaks as a bullet strikes it, or how steel plate bends and bursts in an underwater explosion. With the aid of the high speed camera, scientists have been able to study the passage of flames through exploding gas, and the advance of a flash of lightning from cloud to ground at a speed of 100 miles an hour. Cameras have been placed perilously near to 1,000,000 volt discharges to record the speed of electric sparks, the camera, remarked Dr Allibone, seeming 'not to mind being electrocuted'.

In the intermediate ranges of speed, the camera is used to record

events which occur just too rapidly to be perceptible to the eye. Mechanical movements in industry and in the laboratory are studied in this way; as for example, the flight of the shuttle across the loom, and the motion of thread in weaving. There is no other way in which we can see slowly and repeatedly exactly what occurs.

There is a film which clearly shows the stresses in a railway wheel as a train is travelling; first the intense force from the rim of the wheel on the top of the rail, and then the effects being transferred through the rail to the chair and the sleeper.

The value of many films using time-lapse photography, emphasized Dr Allibone, is in the exactness with which they enable scientists to take measurements of events too fast, or too slow, for the human eye to see.

The uses of the camera in the study of living cells was described by Dr Arthur Hughes, of Strangeways Laboratory, Cambridge. The work of the laboratory, he said, is to study living cells, and research is recorded by means of the film camera, used in conjunction with a microscope.

Research is being carried out into the process of cell division which goes on in actively growing tissues, such as those of a chick embryo. In order to observe such cells, they must be isolated, and the living tissue is prepared in a single thin layer suitable for study under the microscope. This is done by the technique of tissue culture. Fragments of living tissue are grown in a nutritive jelly in thin glass vessels, under sterile conditions. They form a very thin layer of cells, which are then photographed at intervals through a new type of microscope, employing the principle of phase-contrast illumination. The living cell is in process of constant movement too slow to be apparent to the eye, so the principle of time-lapse cinematography is used. Dr Hughes said that study of the consistency of living protoplasm is beginning. Iron particles inside the cell are moved by means of a magnet, and these are filmed.

Although the use of film camera and microscope for the study of the process of cell division is by no means new, recent developments in microscopes, of which the phase-contrast model is but one, are stimulating new research in cellular biology. Work along these lines is developing, and, said Dr Hughes, 'I think it probable that the film camera will be a necessary part of most of our future techniques for the study of the living cell.'

Thus the medium of film is aiding scientific research, and also enabling the general public to learn of recent scientific developments. In addition to breaking down some of the barriers so often separat-

ing the scientist from the layman, it is, through such organizations as ISFA, removing national barriers.

MEDICINE

Medical films shown at the ISFA 1948 Congress indicate the progress being made in this field. *Neurological Sequelae of Deficiency Diseases* was sent from Australia. This sound film in black and white briefly recorded the conditions in a Japanese P.O.W. camp at the time of its relief, and the neurological conditions of selected cases. The film had undoubted medical interest, and placed on permanent record unusual conditions which it is hoped will never recur.

Mr E. Gwynne-Evans, F.R.C.S., introduced a silent colour film on the *Behaviour of the Oro-Musculature*, then incomplete, the purpose of which is to record for later study selected cases of 'mouth breathing' and similar conditions.

An example of successful collaboration between the staff of a teaching hospital and a film unit were two films made at Guy's Hospital by the Film Unit of the Wellcome Foundation. They presented case records of *Rheumatic Chorea*, and of the rarer *Hereditary Ataxia*.

Films from abroad included *Development of Peritoneum*, made by Dr Bloementhal of Amsterdam, who stressed the value of the animated diagram for medical teaching films. This silent black and white film demonstrated how the diagrammatic technique enables the teacher to omit all superfluous matter, while the speed of the action can be varied to suit the needs of the lecturer. Diagrams also showed conditions and subjects that could not be illustrated by other means. Dr Bloementhal received warm congratulations from the audience on his work, and the Chairman, Dr E. Goodwin Rawlinson, expressed the hope that his example would encourage other film-makers to experiment with diagram films.

Much that has been said of the use of film in scientific training and research is true also of its uses in medicine. In medical schools one of the chief purposes for which film is employed is the demonstration of experiments which cannot be repeated, or which are difficult to perform frequently.

Students may not be expected to perform experiments themselves, but it is essential they should learn from demonstrations exactly how they are performed, and be able to observe the results. An example is a film demonstrating the physiology of the brain, an experiment requiring great technical skill and one which is costly

to perform. Film provides a complete record of a process for projection *time and time again.*

The experienced teacher knows just what features of a given experiment should be accentuated; the research worker may wish for a film record of some particular process; neither may know the best way to film the work. Close co-operation between medical teacher and/or research worker and the film-maker is therefore essential. There were very few professionally made medical films before the last war, most productions listed by the British Film Institute over this period being made by doctors on 16-mm. to illustrate their own work.

Judged from professional film standards only a few of them were well made, but from a medical point of view they were of great value. In many cases, however, the doctor and/or the hospital owning such films was unable to afford to make copies of the films, and in the case of colour films was naturally reluctant to lend the master copy for projection by others, and so minimum circulation resulted. During the war a number of first-class medical films were made via the Ministry of Information, and in recent years there have been more, including the notable series on anaesthetics sponsored by Imperial Chemical Industries, and an excellent film on blood transfusion, which surveys international progress in the practice, including the discovery and significance of the blood groups, explained by diagram. The film deals with citrated blood, whole blood, plasms, wet and dried serum, and experiments with cadaver blood in the Soviet Union.

Other notable films are *Penicillin*, *Chest Surgery* (probably one of the finest medical films so far produced), *Scabies*, *Neuroses*, and *Gas Air Analgesia in Midwifery*. Such films serve a two-fold purpose. They are used for teaching purposes in medical schools, and they enable the general practitioner to keep his knowledge up to date.

Both the training of dentists and dental research owe a lot to the introduction of film into the hospital, and a great deal of pioneer work was done in the thirties by the American Dental Association, which developed the use of colour photography for dental teaching. Film, and especially colour film, can, thanks to the 'seeing power' of the camera lens, bring the details of a mouth interior before a large gathering. Continuity in every demonstration is of especial importance, and the ability of film to flow from stage to stage without interruption, giving no opportunity for the attention to wander (as when a lecturer pauses for a slide to change, or to draw a diagram)

is one of its advantages. Moreover, in the highly specialized field of medicine, the film demonstration, experiment, or operation, is primarily visual. There are few linguistic barriers, so that methods practised in other countries may be studied and understood here, and vice versa. Among the films made to teach the theory and practice of dentistry are *The Surgical Treatment of Pyorrhoea*, and *The Immediate Insertion of Dentures*. There have also been invaluable records of difficult extractions, one of the most notable being produced by George Winter, a President of the American Dental Association, demonstrating in colour the extraction of an impacted tooth.

Great advances have been made in the field of medical photography but the still picture has limitations, especially in the illustration, demonstration, and recording of surgical and manipulative techniques, and in recording research into progressive diseases and their cures. There are, moreover, certain diseases in which the observation of movement is a primary consideration.

The comparatively low cost of 16-mm. black and white film is leading an increasing number of medical men to inquire into the possibilities of using it in the teaching of medicine and the recording of clinical conditions.

An indication of the scope of films in medical teaching is given in the Report of the Committee of the British Medical Association appointed by the Council in April 1946 to 'inquire into the scope and use of films in post-graduate and undergraduate medical education'.

The Committee submitted a Report in 1947, based on experience gained in practical demonstrations of film techniques in teaching, and upon views of qualified persons. The Report laid down the principles and techniques to be employed in teaching with films, and explored general uses. The need for keeping films in their proper place in the curriculum, rather than using them when other means were available and more suitable, was emphasized.

The medical film, it states, falls into one of two groups; the longer film, telling its own story on a particular subject, acting as a 'visiting lecturer', and offering opportunities for a synthesis of events which were actually separate in time and space; and the short film, demonstrating one particular point, serving to illustrate the teacher's own development of a subject, and primarily of use in undergraduate medical education. Where appearance is important to the topic, states the Report, actual photographic shots will be essential. When structure, relations, and processes, the course of impulses or the

combination of movements, are to be illustrated, diagrams, both animated and stationary, are appropriate.

The compilers of the Report made a careful survey of the types of film which they felt could with advantage be utilized as aids to teaching the various sections of the medical curriculum, and they suggested lines of future development.

In anatomy, they stated, the following types of cinematographic aids would be of value: silent captioned films showing actions of the muscles in normal living subjects; variations of stance, posture, bodily habitus; paresis and paralysis of muscles: distribution of nerves; endoscopic appearance of body cavities; early development of living cells and tissues; and patterns of behaviour in experimental animals. These films would generally be black and white, but colour might sometimes be found valuable.

Short silent films of the same type could be used to demonstrate special regions, dissections, and preparations of the cadaver to a large class. Others could show the technique of dissecting and demonstrate the relations of body-planes and layers. Ciné-radiographic films would be valuable for showing movements of joints, movements of parts of the alimentary canal, and the movement of thoracic viscera.

Animated cartoons, both coloured and non-coloured, would be valuable in teaching embryology, for showing successive phases of tissue, organ, or region-development. In neurology, they would be valuable for representing the course of impulses along nerves and fibre-tracts. Teachers of arthrology would find them useful for illustrating the actions of muscles and joints.

Physiology is a wide field in which films of all types could be valuably employed. Long films, dealing with complete subjects, could demonstrate, for example, methods of measuring cardiac output in man; methods of making dietetic surveys; cellular anatomy and physiology, live tissues, and tissue culture; and the circulation of the blood.

Short films could demonstrate particular topics; for example, the measurement of arterial blood pressure, or the observation of the exposed heart. These films, states the Report, should not, however, be used to supplant actual demonstrations, though they might reduce their numbers. Films could also be profitably used to demonstrate clinical cases, which might not be available at the required time, in a systematic course, such as neurological cases, showing the effects of nerve lesions, or endocrine-gland disturbances.

Silent captioned films would be of value to demonstrate the action

and reaction of drugs on human and animal subjects; clinical techniques, aspirations, blood transfusions, artificial pneumothorax; the use of apparatus; and to show diseases of the chest or other systems.

Sound could be incorporated advantageously in the demonstrations of routine clinical examinations, clinical case histories, and typical cases. It would also be invaluable to demonstrate cardiac and respiratory sounds. For, states the Report, the student may often listen at the wrong place, or apply the stethoscope badly, or miss altogether the point being demonstrated.

The field of paediatrics lends itself particularly well to illustration by film, for most clinical paediatrics consist of dramatic short illnesses with rapidly changing signs and symptoms, and under present conditions only a very small proportion of students and doctors can obtain practical experience in this field.

Generally, states the Report, films of major operative surgery should not be made for undergraduate use, but the following types are considered of value for teaching purposes: examination of a patient with certain surgical conditions; orthopaedic subjects; examination of injured persons; minor operative procedure; plaster-of-paris techniques; reduction and fixation of fractures; and anatomical abnormalities.

Films are advocated on general medical and surgical subjects, with a bearing on pregnancy, and silent captioned subjects showing cases such as abnormal presentations; the various stages of pre-natal development; and mechanisms and techniques in delivery.

Pathology is another field for illustration by film. Post-mortem examinations and microscopal study of tissue must, declares the Report, always form the basis for teaching this subject, but the film has an obvious place, first, for giving a general survey of the subject; secondly, for linking pathology with clinical medicine. Composite films demonstrating the clinical manifestations of a pathological process from the earliest detectable point to a termination, associated with the pathological changes at each phase, are invaluable for making pathology the fundamental basis for good practical medicine. Routine pathology can be efficiently taught by means of the lantern slide and film strip—for example, histological detail when the projected image is all-important. These methods can best be employed as a class demonstration preceding individual study of material with the microscope.

In the study of industrial hygiene and disease, hygiene and public health, and forensic medicine also, films can profitably teach, states the Report.

These, then, are the uses of film in teaching medicine forecast for the future, together with subjects made to record specialist research. Finally, essay and documentary films are needed for the general practitioner, to enable him to keep abreast with recent developments in medicine. There is no doubt that such subjects will be extremely popular with doctors throughout the country, helping to raise and maintain the general standard of medical treatment in practice.[1]

The 'story' film is a type greatly needed in medical schools. When a recorded case is dismissed, not only have the film records made of it intrinsic value for teaching, but selected frames can be enlarged and either filed with the case-history, used to illustrate published work, or used in film-strip form. In this way, for example, the extremes of movement in a case of slipped femoral epiphysis can be recorded for future study. As clinical material accumulates, *complete* teaching films become possible. A very valuable film could be made, for example, of the *complete* disease process of goitre, often seen by doctors at one stage only.

The presentation of movement on the screen is of particular value to the orthopaedic surgeon and the neurologist. Periodic records are pieced together for routine checking while the patient is under treatment, and thus provide a complete case record, the finished film showing in a few minutes what has been happening over several months. This result cannot be approached by the most perfect clinical notes or still photography.

Lastly, films are valuable as background material. For example, public health students need to study the sewage system, and to learn how contaminated drinking water supplies occur. Film can give students a clear understanding, and show both photographically and by diagrams the processes by which water is purified.

Silent medical films are in the majority, because most of the cameras and projectors in the hands of the medical profession are for silent work, approximately 75 per cent of medical schools possessing silent projectors as against 25 per cent with sound machines. Silent films are preferred by many doctors because they are less distracting than sound films and they can be described by whoever is presenting the film in his own words. Also, the silent film is impersonal and therefore considered more suitable for this kind of teaching.

Briefly, then, photography, ciné and still, is playing an ever-

[1] *Lists of Subjects on which Films are Desired in Medicine*, published by the Scientific Film Association, comprising replies of Deans of medical schools and various learned societies to a questionnaire circulated in 1945 by the Medical Committee of the S.F.A.

increasing role in medical science. So far, comparatively few teaching hospitals are making the best use of their photographic units, although an increasing number are setting up departments equipped to make films. Plans are being formulated through the Scientific Film Association and the British Universities Film Council to exchange information on films in production, and to circulate finished films widely among medical schools.

In an article on the photographic department of the teaching hospital,[1] Dr Peter Hansell, of the Department of Medical Photography of Westminster Hospital, suggested ways in which efficiency might be increased: a proper recording system is essential; material should be filed in such a way as to create a logical connecting link between film records obtained, and these should be adapted to ensure their greatest possible use in medical education.

The would-be user of films on medicine is in a rather better position than other scientific workers, there being available to him a complete list of all the films in existence in Great Britain in this category, for, in 1946, the Scientific Film Association and the Royal Society of Medicine undertook cataloguing work, and, during the course of a year, *1,200 films were indexed, 800 viewed*, and a summary of their contents recorded. In the autumn of 1947 the catalogue was published under the title of the *RSM/SFA Catalogue of Medical Films*. Part 1 contains the titles of the 800, and in Part 2, abbreviated synopses of 200 of these are given (a tantalizing procedure, leaving possible users to wonder whether any of the remaining 600 might not better suit their purposes). The reasons why only 200 were analysed in the catalogue were, first, the fact that the work was undertaken during a period of acute paper shortage, when a large publication was out of the question, and, secondly, that many of the films were in the hands of private individuals, each owning only the original copy. The majority of the 800 medical productions are 'amateur' (made by doctors).

Nearly half the films listed in the Subjects Group index are collected into only five of the sixty groups given—neurology, obstetrics, public health, surgery, and physiology. Most of the neurological films come from two university departments, and are not available for loan outside those universities. They consist mainly of short case-records of the kind that would be widely used were they on loan; although the photography is not always of a very high order, the clinical content is good, and it is regretted that they cannot be distributed more widely.

[1] *The Lancet*, 1 November 1947, p. 663.

A variety of sources, mainly individual surgeons, have furnished the obstetric films, and there are also Professor de Lee's excellent productions, his film on eclampsia being outstanding. Physiological films comprise a large group made at one university some twenty years ago, which are not available; the remainder are from scattered sources. Most possess good teaching value, for, like those in the neurology group, they tend to be short records of indisputable facts, and so can be fruitfully used by everyone. The bulk of the surgical films, on the other hand, are of little teaching value. They are mainly records of individual technique, and therefore have value only for their originators.

Public health films catalogued tend to differ from the other groups, since they are usually sponsored by societies. A large proportion was produced by the fighting services, and they are therefore of limited use, but the collection owned by the Central Film Library has been described as first class, and is widely used. The catalogue demonstrated that a great number of the medical films in this country are not available for circulation, and, furthermore, of those that are, a large proportion are unsuitable for widespread use.

Although at first sight this may appear discouraging, many new experiments are being carried out and increasing attention is being paid to making new productions suitable for wider use. Moreover, three new developments are likely to influence the contents of future films in this country: the National Health Act, the growth of the hospital photographic departments, and the formation of a centralized medical film library.

The Library Plan has long occupied the minds of those in the profession, and the Committee made preliminary investigations into the proposed establishment by the Association of a medical film library, and put forward proposals of what it must comprise. Investigations continue.

ENGINEERING

We are all familiar with the film illustrating an industrial process —making cigarettes, baking bread, or building liners. The documentary school has for many years presented industry on the screen, usually with the object of showing its importance in relation to the life of the community, and the interdependence of manufacturer and consumer. The majority of these industrial films have been dramatized to increase their appeal. That is, they have been abbreviated, edited to create pictorial rhythm, whilst natural mechanical sounds have frequently been wedded to music.

Many such films cannot be regarded as suitable for engineering training purposes, save as background subjects. Few if any of them would satisfy the expert. But they have vividly demonstrated the suitability of the screen for teaching almost every branch of engineering, and their producers are entitled to claim credit for developments in this direction. Such films are suitable for general consumption, and admirable for the purpose of acquainting people with the important parts played by engineers in the life of a nation, and in factory administration.

There are engineering films especially designed for students, quite unsuitable for general consumption, and there are engineering records in film form of new machinery, and of workshop experiments, many in slow motion, a technique of very special importance in this field, there being no better method of studying mechanical action than by watching it *slowed down*.

Here, picked at random, are a few examples of engineering films: *Airscrew*—an exposition of the making of an airscrew, from the inspection of raw materials to the final check by the Aircraft Inspection Department; *How a Motor-Car Engine Works*—a simple explanation, mainly by diagrams, of the working of the four-stroke internal combustion engine, showing the principle of the four strokes—induction, compression, firing, and exhaust; a film illustrating the principles of the design for the Bailey bridge worked out at the Experimental Bridging Establishment of the Ministry of Supply, explained by the inventor, showing the bridge being erected and in use in different forms; *Clydebuilt*—illustrating the construction of a ship, and explaining the difference between riveting and welding, and also prefabrication on American lines, which is practised to-day to some extent on the Clyde.

There are films for training Post Office engineers, such as *Telephone Cable Jointing* and *Telephone Cable Plumbing*, *Use of the Safety Belt*, *Pole Testing*, and on the erection of overhead lines, all of which I have produced during the last few years. It is generally agreed that film tuition on such subjects has many advantages over the workshop demonstration. The jointing of a cable is a long and highly specialized job, and the film covers every stage, slowly, and principally in large close-ups. The special method of winding the wires together is shown first normally, and then in slow-motion. Similarly, *Telephone Cable Plumbing* continues the process, and slow-motion camerawork is introduced when liquid lead is being applied to the joint, so that action which normally occupies seconds is made visible for concentrated study for a longer period.

The construction of valves for radio and television purposes has been filmed in colour not only for tuitional purposes but to provide factory records for future use. There are numerous other subjects which could justifiably be placed in the engineering category, but the above will serve, in this general survey, to show how particularly suitable film is for training in this specialized field.

ART AND LANGUAGES

Whether or not film is regarded as an art, it can certainly help in teaching most of the other arts, though at the time of writing it has seldom been employed for such purposes. Later I shall refer in some detail to the film on music, *Instruments of the Orchestra*, presenting Sir Malcolm Sargent's analysis of an orchestra playing Britten's Variations and Fugue on a Theme by Purcell, which indicates the immense opportunities offered by film in musical tuition and appreciation.

There have been a few other notable films which justify mention in this category; one of Dame Myra Hess playing the first movement of Beethoven's Appassionata Sonata; another, *Hymn of the Nations*, with Toscanini conducting the N.B.C. Symphony Orchestra. There are also some interesting Indian films describing musical instruments such as the bansari, mrdigangam (drums), jaltarang (bowls filled with water), and so on. There is no doubt that film can be of value to all wishing to increase their knowledge of the works of the great composers by developing the approach begun by *Instruments of the Orchestra*.

And what can moving pictures do to increase understanding and appreciation of the great paintings in the galleries of the world? At classroom level it can introduce masterpieces to pupils who may never have opportunities to see the originals, and it can, by commentary and camera analysis, point to and explain their qualities. Paintings, sculpture, architecture, can be brought into the classroom by film and film strip, and studied in a way hitherto impossible.

At a higher level, the filming of great paintings and sculpture is opening a new world to the art student. Here is a report from Italy on the subject:

'The day Luciano Emmer and Enrico Gras realized the possibilities of film in its application to paintings must be remembered as a capital event in the history of cinema and in the history of art. It may even be that their discovery will be recognized as that in-

herent identity between two forms of artistic expression hitherto confined within the limits of tiresome analogies.

'The discovery made by these two Italian "documentarists" opens up a new field for the cinema. Thanks to their work, we are no longer to see those hideous and pedantic documentaries which had the audacity to inform us that Michelangelo was a genius or which complacently claimed to discover that Leonardo da Vinci was a man who possessed every talent. This is the first time as far as we know that the camera has penetrated the spirit of painting, animating the pictorial object with a new life.

'The movement of the camera belongs to the most widely-spoken language, and Emmer's secret, which made it possible for Giotto's warlike archangels to bear down upon the spectator, also applies perfectly to Watteau's "Escarpolette", which advances and recedes in Francisci's Risveglio di Primavera (Lux.). Painting and sculpture furnish the cinema with a wonderful and practically inexhaustible wealth of opportunities; whole centuries are at our disposal. The "Holy Lamb" of the brothers Van Eyck becomes *The Holy Lamb* by André Cauvin, and may be compared with his *Memling*. *Rubens and His Times*, by René Huyghe (1938) and *Rubens*, by Paul Haesaerts and Henri Storck, come very close to the *Monde de Paul Delvaux* or *The Apocalypse* by H. G. Casparius, and Guiliano Betti's *Botticelli*. The Italians are to-day in a privileged position. They can display all Emmer's works; *Cantico della Creatura* (on the frescoes of Assisi), *Guerrieri* (Piero della Francesca, Simone Martini Uccello), *Histoire du Paradis Terrestre* (Bosch), *The Legend of St. Ursula* (according to Carpaccio), *Sulla via di Damasco* (The Road to Damascus), *Goya* (1949) and *The Legend of Cosmos and Damien* (Angelico). Carpaccio was given another interpreter after Emmer: Umberto Barbaro. Painting has served to illustrate the life of Jean Sebastien Bach in *The Passion According to Saint Matthew*, by Ernst Marischka.

'Raphael's *Descent from the Cross* found an effective commentator in Betti. The Life of the Virgin is presented throughout an immense iconographical work in *Eterna Inspiratrice* by Giampiero Pucci, while the impressionist school finds expression in *I Pittori Impressionisti* by Francesco Pasinetti.

'Sculpture lends itself less than paintings to the deft play of the photographic lens, especially since for a simple photograph two dimensions are sufficient to render a picture. Curt Œrtel's *Michelangelo* (1940), however, likewise led the way to *The Gospel of Saint Peter*, by André Bureau, and more particularly to Jean-François

Noel's stupendous production *Les Gisants*, in which were seen all the funeral monuments of France. The road is none the less strewn with difficulties and at every turn literature lies watching.

'Among other recent films are *Il Cubismo* (Glauco Pellegrini—1949), which attacks the same problems as those dealt with in *Guernica* (Resnais and Robert Henssens—1950), but less rigorously and idealistically; *Images Gothiques* (Maurice Cloche) which gives sculpture a mystic life of shadow and light; *Images Médiévales* (a colour film by William Novik—1949) which recalls the Italian Botticelli, by Luigi Cristiani.

'To sum up, Emmer's *Giotto*, Œrtel's *Michelangelo*, Resnais's *Van Gogh*, Jean-François Noel's *Les Gisants*, and Castelli Gattinara's *Il Demoniaco Nell' Arte*, are the milestones along this new road of filming works of art. It is one in which sacred art can find a lesson and a hope.'[1]

The achievement of the Italian film-makers lies in their genius in creating works of film art out of works of art on canvas and in stone. These are films of flowing movement and dramatically changing lighting—yet the masterpieces so filmed are motionless. It may well be that for purely classroom purposes films will be made of works of art in which little, if any, such movement occurs. If, then, a film is composed of a series of still pictures is it to be condemned, or judged for its teaching value only? If possessed of teaching value, it is a good educational film, even though lacking in film values. That being so, would not a film strip be preferable to a film illustrating, say, painting or sculpture, composed of static images? Indeed it would if the teacher or lecturer can accompany the scenes with adequate verbal description.

An important side to film is its ability to bring to the classroom or lecture hall, however remote, experts and personalities who otherwise would never be seen or heard in such establishments.

The lecture-film has not, so far, been developed, but I foresee a great development in this direction, for every school equipped with a projector can then be given talks 'in person', by the greatest authorities on art, science, history, geography, and so on. Would such visual aids possess real film values, educational values, or both? There can be no fixed answer, of course, for whilst some film lecturers might be describing a series of static images, others would be discussing processes, peoples, or places, bringing maximum movement to the screen.

Reference to the lecture-film leads me to the teaching of languages.

[1] *International Film Review*, No. 5, 1950, pp. 28 and 29.

'One has to live in a country to learn to speak its language.' One can now 'live' in another country without visiting it, thanks to film. The language-teaching film is a natural extension of the lecture-film, and will possess the added advantage of teaching geography, too, for both a country's face and the life of its citizens are projected to us, as in the successful 'La Famille Martin' series, made by Basic Films to teach the French language: *La Famille Martin*; *Départ de Grandes Vacances*; *Histoire de Poissons*.

FILMS FOR GROUPS WITHIN THE COMMUNITY

Distinct from films for schools, colleges, and universities are those designed to provide specialized instruction for adults in various professions and trades, to help them in training, widen their experience, and/or keep them up to date with developments in their respective callings. In this category one might justifiably include films in training colleges. Film is proving valuable both to students training to become teachers, and, as we shall see, for qualified teachers, too.

All educational institutes belonging to universities and teachers' training colleges instruct students in the *methods* of education and child pyschology, and, at the time of writing, there are several films dealing with the latter subject suitable both for students and all interested in child welfare. Two were produced for the Ministry of Education. The first was *Children Learning by Experience*, primarily designed for those training as teachers, to provide material for study and discussion, and to be used in conjunction with first-hand observation of children. It presents studies of children absorbed in their own affairs, and is so constructed that it can be shown either as a whole, or in sections for more detailed study. The commentary is brief, and the scenes intentionally long in order that the significance of the children's behaviour may be fully considered. Numerous problems are posed by the film, and questions asked, to stimulate student-teachers to fresh thought and observation. The second film, *Children Growing up with Other People*, was also designed to aid teachers in training, and employs the same technique. It deals with child development, and illustrates the problems set by particular age groups in relation to the continuous process of development. Another important film is *The Children's Story*, which describes teaching methods in Scotland—illustrating interesting approaches to reading, writing, and arithmetic. It shows, too, the

organization of classes for domestic science and agriculture, and points to future developments. Somewhat similar is *The Three R's*, showing teaching methods in operation in Northallerton County Modern School, where between three and four hundred children from eleven upwards are seen being taught by a new method in which theoretical lessons are closely linked to practical experience.

Such films are of special benefit to the student-teacher. They enlarge experience in a way hitherto impossible, giving an insight into children's minds, and a knowledge of the latest educational methods which, without film, could be obtained only through years of trial and error. Furthermore, they enable the student-teacher to benefit by the experience of specialists who have made teaching practice and theory a life study.

Also within this category, though of an entirely different nature, are a series of films demonstrating the correct procedure for serving dinners in schools, both when cooked on the premises and when served from a central kitchen which supplies several schools. The amount of detail involved in organizing daily meals for several hundred children—served in relays—is very considerable, and the films present an overall picture of the value of system, the need for scrupulous cleanliness, the interdependence of kitchen staff, teachers, and pupils, and how, by the appointing of monitors, the teaching of table-laying, plate-collecting, and table manners, the meals literally become lessons in discipline, efficiency, and tidiness.

§ § §

Films for Farmers. The vital part played by the farmer in the life of the nation needs no emphasis here, and it is encouraging to know that in recent years his hard and difficult work has been greatly facilitated by film. However remote the area in which he lives, film can reach him, either by mobile film projection unit or in the village hall. During the last war thousands of film shows designed for farming communities were given all over the country, and in one period of nine months there were 1,500 such performances. They achieved and continue to achieve two main objects. First, they provide evidence of the vital part played by agriculture, and not only spur farmers on to increased effort but induce others to work on the land. Secondly, they bring first-hand detailed information and instruction on the latest farming methods, and explain the numerous benefits which scientific research is making available.

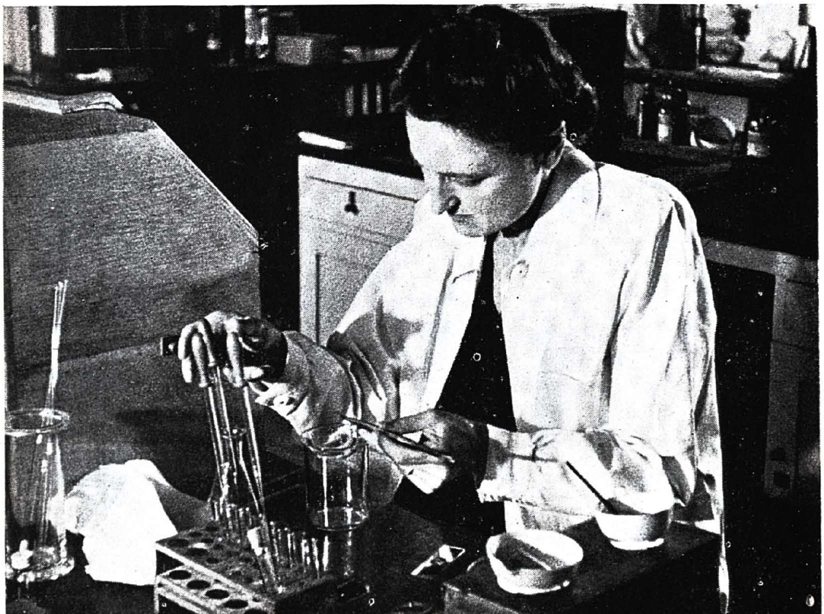
To many farmers the world beyond their fields is comparatively unknown. Working from dawn to dusk, they have no time to travel

G-B Instructional Ltd

Filming a cancer operation in Chest Surgery, *1943. Made for the British Council. Directed by A. Reginald Dobson. For doctors and medical students.*

Crown Film Unit

On the road to recovery. A scene from Polio—Diagnosis and Management, *1948. Made for the Ministry of Health. Directed by Geoffrey Innes. For medical and general audiences.*



Imperial Chemical Industries Ltd

Dr Jennings, member of the Oxford team who developed Penicillin, seen in the laboratory. From Penicillin, *1948. Made by the Realist Film Unit. Directed by Dorothy Grayson.*

round to see what others are doing, and until film brought them pictorial evidence of mechanical and scientific progress they were reluctant to introduce 'new-fangled ideas'. Very understandably, many of them had to be coaxed to come to see films, but latterly the general attitude has changed, for so many agricultural films giving invaluable information have circulated throughout the countryside that their worth is realized. There is no doubt that most films in this category owe their significance to the war, when a concentrated drive was made to extract maximum results from the land. To-day, the need is no less great and the film drive continues, though the output is not as large as during the war years.

Having written and produced a number of agricultural films myself, it will be permissible, I feel, briefly to refer to a few of them to exemplify the wide range covered. Among the simpler subjects were several emphasizing the need to maintain farming machinery in a good state of repair, and, moreover, for the farmer to carry out minor repairs in the farmyard instead of sending machines to the nearest town and waiting weeks for them to be put in working order. *Care and Maintenance of the Tractor* illustrated, in careful detail, how to dismantle the engine completely, decarbonize it, clean all parts, reassemble, and tune it for easy starting. A farm mechanic carried out the demonstration, which was authentic, and not staged for film purposes. Invariably such films as this are supplemented by pamphlets, which recapitulate, and add to, the information supplied by the film.

Welding Helps the Farmer showed the value of installing welding apparatus in farm and forge, and how to use it. Many are the minor breakages which can result in major hold-ups if the farmer cannot carry out the repairs himself, and welding is taught and applied to several different broken parts—on tractors, harvesters, and so on. In both these films we used natural interiors—a farm workshop and a blacksmith's forge, which we lit with our own lights, electricity being available for one, and a portable generator supplying current for the other.

Cereal Seed Disinfection was made at the School of Agriculture, Cambridge, under the guidance of Dr W. A. R. Dillon Weston, eminent plant pathologist. It was designed to impress farmers with the urgent need to dust their seeds *before* sowing with organo-mercury powder to reduce the chances of their becoming infected by such destructive wind-borne diseases as Smut, Stripe, and Bunt, which can destroy acres of vitally needed oats, wheat, and barley. Micro-photography was employed to show the organisms attacking

the seeds, and numerous specimens of healthy and diseased ears were filmed in the laboratory. Seed-dusting was demonstrated by a number of contrasting machines, ranging from the latest mechanized examples to simple but equally effective home-made rotating drums, some made from barrels. The film is an example of close co-operation between scientist and film-maker. A draft of the requirements was furnished to us by Dr Dillon Weston, from which we prepared a scenario. All the material was viewed by Dr Dillon Weston before editing began, to ensure that the best takes from a *scientific* point of view were selected. Finally, we prepared a commentary from data compiled during production, and this was checked and counter-checked at Cambridge before recording. The film presents a scientific subject in a form easily understandable by agricultural audiences.

The film entitled *Stomach Worms in Sheep* (Parasitic Gastritis) was, and still is, an urgent message revealing the startling fact that almost every sheep in the world when grazing picks up at some time or other the worms causing this disease. A small number may do little or no harm, but in badly infected cases there may be as many as 100,000 present, and the animal goes into a quick decline and invariably dies. The film begins with a cross-section diagram of a sheep, which illustrates the complete cycle of events—picking up the parasite; breeding; expulsion. The actual breeding of the worms inside the sheep was shown by micro-photography. The nature of the disease having been explained, the film showed how sheep infect each other if allowed to remain on the same pasture land for several days, it being essential to move them on to fresh land at short regular intervals. This was illustrated both by actual scenes and by diagram. Preventive measures were followed by examples of curing by dosing the sheep with pheno-thiazine, both in liquid form and pellets—the correct quantity and the method of handling the animals being demonstrated. The film ended with a statistical chart showing the tremendous losses due to the disease, and appealed to sheep farmers to safeguard their flocks by adopting the precautions illustrated.

Within the same category was *B.W.D.* (Bacillary White Diarrhoea), which causes an annual loss to the poultry industry of millions of pounds. Again micro-photography, diagrams, and real-life scenes were blended to show how to recognize the symptoms of the disease, how to check it, and above all, how to prevent it by scrupulous cleanliness in disinfecting, fumigating, scrubbing utensils, and so on. The disease is diagnosed by making blood tests which are

carried out under the Ministry of Agriculture's accredited scheme, and this testing was presented in detail.

Made for the Scottish Office, *Power on the Farm* illustrated the numerous advantages of electricity to farmers, especially those in remote areas, to whom power can now be brought via the grid system as a result of the big hydro-electric schemes developed in Scotland. The film opens with a glimpse of life on a primitive farm—candle-lit rooms, milking by the dim light of an oil lamp, time and energy being wasted when all water-heating and cooking depend on the old-fashioned range, and so on. Then, in contrast, the ceaseless torrent of water which has been harnessed to generate electric power, and how it is being used on the farm—in the workshop, driving saws and lathes, food mixing, threshing, pulping, grass-drying, milking, sterilizing all equipment, even plucking poultry electrically. Its advantages in the farmhouse are also shown—in refrigeration, the pumping and heating of water, cooking, electric washing machines, carpet-sweeping, and so on.

The above brief descriptions of contrasting agricultural films give some idea of the teaching power of film. The Central Film Library's catalogue for 1948 lists nearly eighty of such subjects which are circulating throughout the country, and frequently abroad, to farming audiences, but which do not, of course, reach the cinema public.

§ § §

Gardening, Mining, Nursing, Domestic Science. Gardeners are equally well served with instructive films giving practical demonstrations of many phases of the work involved in food production on a small scale, such as *How to Dig*, *Simple Fruit Pruning*, and *Winter Work in your Garden*.

Nurses, miners, and domestic science students (cooking, dietetics, housewifery), are all among those, whether training or fully trained, who are provided with visual education.

Here are two contrasting examples from my own productions. The first, *Training for Mechanized Mining*, was made at the Mines Mechanization Training Centre in Sheffield, which is classed as the first of its kind in the world where actual mining conditions are reproduced. The film was made to show miners the newest kinds of machinery, mostly American, designed to facilitate their work and increase output. Students were seen being trained in the use of electrical apparatus, signalling, oxy-acetylene welding, modern coal-cutting machines, and so on. This is an excellent example of how film can illustrate clearly mechanical processes which it would

otherwise be impossible to demonstrate to large numbers of men in scattered communities. Concentrated into an hour is a survey of all that is new in mining machinery, together with practical demonstrations in safety precautions.

In complete contrast are the basic cooking films made for the Ministry of Food for instructing housewives as to how to obtain the best results with limited supplies. These films present pictorial analyses of food preparation, cooking, serving, preservation, and storing, illustrated by large close-ups of table-top activities, the audience never being distracted by the personality of the demonstrator, since hands only are shown. No stage is omitted—nothing taken for granted.

§ § §

Films on Careers. Within this category of specialized films should come, I think, those on careers. Only recently has film been employed to help people to choose suitable careers by illustrating conditions in various professions and trades—such as nursing, building, farming, civil engineering, the retail trade, lorry driving, food manufacture, and so on.

What's The Next Job? was the first in a series produced for the Ministry of Labour, and is a good example of the career film which presents the facts about various jobs but does not seek to persuade people to enter any particular calling. Pros and cons are stated, qualifications explained, available training schemes described; pay, working conditions, prospects of secure employment and advancement are all dealt with. This film also shows how the employment exchanges and other services of the Ministry of Labour can help one to find the right job.

During the war I made a career film for the British Council called *Learning a Job*, in which a father was seen talking to his son and daughter, both at school, about their future. They were studying a book describing various jobs, and its turning leaves served to introduce various actual training methods in schools. The boy was shown pupils learning building trades in a technical school—bricklaying, carpentry, plastering, painting, and various branches of engineering. The girl was shown large domestic science classes—cooking, housewifery, dressmaking, hairdressing, and so on.

This form of career instruction is a distinct innovation, and, when linked to the specialized films already referred to catering for those who have chosen their careers and are training, invests film with a power and an importance which is, perhaps, unequalled by any other

medium, even though, as the educationalist will remind us, it remains a supplementary medium, and cannot supersede personal instruction by the teacher.

§ § §

Films to Enlighten the General Public. Then come the specialized films which are designed to instruct and/or enlighten *general* audiences—the community as a whole—on subjects of common interest; hygiene, road safety, first aid, child welfare and, in times of war, on, say, air raid precautions, salvage, emergency cooking methods.

These films, mostly of government origin, are widely distributed, usually with the co-operation of local authorities, shows being given in town and village halls, public libraries, adult schools, factories, welfare centres, and so on.

The Central Film Library in 1948 possessed nearly fifty subjects for such general audiences. The films were mostly listed under Health, Hygiene, and Medicine, and ranged from *Breath of Danger* (on how to defeat the common cold) to *The Story of D.D.T.* It is interesting to note that all or nearly all of these films are unsuitable for cinema release. They were not designed to entertain, and even from a general interest point of view they would seem out of place on the commercial screen because they are too highly detailed, and are addressed to groups of people who have gathered (voluntarily or compulsorily) to obtain information, not entertainment.

Occasionally a film on a matter of urgent public interest is made for cinema audiences. An example is *The Nose Has It* which, amusingly but with serious purpose, illustrates the dangers of sneezing. It features Arthur Askey, and is perfectly at home on the commercial screen. When designed in this way the instructional documentary film proves acceptable to the general (unspecialized) public.

§ § §

Films for Religious Instruction. Film has been employed with least effect for religious instruction, although there are quite a large number of available subjects within this category, many of which possess certain teaching values.

Among the leading religious producers and/or distributors in this country are: the British and Foreign Bible Society; the Catholic Film Institute; the Church of England Films Commission; Dawn Trust; Instructional Screen Ltd; London Missionary Society; and Religious Films Ltd. The last named is a distributing company

within the J. Arthur Rank Organization, and its output is considerable. Some of it is acquired from outside sources, other films are made by its associated concern, G. H. W. Productions, with a studio at its disposal wherein it can produce large-scale religious films, the majority of a biblical nature, such as the 'Life of St Paul' series, *Ruth*, *The Wedding Feast*, and so on, designed for distribution in Sunday schools and churches, to encourage and supplement Bible study. Usually these films are technically excellent and reverently treated, but they are unreal, and cannot be otherwise, for biblical Palestine is re-created in the studio, and historic characters and crowds are represented, of course, by professional artists. Whilst such productions undoubtedly present the scriptures in a dramatic and picturesque way the unreality which pervades them is bound to reduce their value. Moreover, like film adaptations of famous works of fiction, they bring to life characters which every reader has *visualized* differently. Invariably one is disappointed when confronted with a living representation of a character one has 'met' in reading who in no way resembles one's private and personal mind-picture of that person. Though merely disturbing where fictional characters are concerned, the result in religious films can be shattering. It might well be argued that despite the infinite care taken to produce such films, they actually can retard one's study of the Bible, primarily of course, because they leave nothing to the imagination.

All, or nearly all, the other kinds of educational films so far referred to have been of the factual type, for studio artifice is rarely introduced into educational film-making. It is disappointing, therefore, to find the factual or documentary approach to religious production comparatively undeveloped, for it is surely the most suitable to illustrate the essential fact that religion is the greatest power in our midst *to-day*, and not a nebulous 'something' which became extinct two thousand years ago. To the documentalist the world of to-day is the stage, ordinary men and women form the cast, and their daily work provides the stories. The aim of the Churches is, or should be, two-fold. To teach religion, and to encourage people to live according to the principles so learnt. This can be done only if religion is made a *reality*, and films depicting incidents in biblical history tend to *remove* religion from to-day. It is 'the futility of bringing stained glass windows to life', as a critic said recently.

In 1946, the Church of England Films Commission published a list of films for religious use which gives an excellent idea of the range of subjects available. An introduction to the list states:

'The use of films for religious purposes must not be regarded merely as a means to attract those who would not otherwise attend church. The intention of their exhibition should be to use the teaching value and the influence of the film, recognizing that it can never take the place of the teacher; that it is an adjunct, a visual aid, and as such a valuable auxiliary. . . .

'. . . it is important to bear in mind that to the large majority of people a film implies entertainment, and that people will in all probability bring to a religious film an attitude of mind which will prevent the message of the film being regarded seriously.'

To overcome this, suggestions are made to prepare the way for a religious film by prayers, a Bible reading, and/or a sermon, leading to the film, which would then be dissociated from 'entertainment'. Some films carry their own messages, such as those based on biblical narratives, and clergy and teachers inexperienced in the use of films are advised to begin with these; it is claimed the documentary type needs to be preceded or followed by an address.

(I feel that a distinction should be made at this point between religious films designed to teach, and those intended to introduce a 'modern note' into the church service, such as hymns, prayers, reading, and exposition, all joined into a single reel for projection in churches. The latter subjects do not really come within this survey, but unless the distinction is made they might easily be grouped with religious *educational* films.

The list published by the Church of England Films Commission classifies available films as follows:

Films based on *biblical narrative*. (The type already referred to.)

Bible background films illustrating places of historic significance, serving as a 'living guide-book' for the student; the walls and gates of Jerusalem—on the road to Bethlehem—and so on.

Historical background films, of which there are a great number, such as *Beginnings*, giving a setting for the early part of the Book of Genesis, and dealing with the growth of civilization on the banks of the Nile and Euphrates, the second part showing the gradual evolution of Sumerian civilization, and finally introducing the nomad shepherds who inhabit Sumer. Others in this category are: *Israel's Battles*, *Israel Goes Out of Egypt*, *The Story of Jacob and Rachael.* Some are set in actual surroundings, others in studios.

Under the heading *Religious History* are two biographical subjects—*William Carey* and *William Tyndale*. The first has missionary interest, showing how Carey influenced social and political life in India, and revealing his great faith and unfailing source of inspira-

tion and courage. The second is interesting as being one of the films which brought into the religious series the use of documentary methods, and blended them with the dramatic approach. It presents the early associations of Tyndale with the Cotswold country, and then traces his journeys to London and finally to Cologne, where the printing of the English Bible is shown.

Under *Documentary* are a number of subjects such as *Early One Morning*, which illustrates activity on a Christmas morning in a Swedish village—showing the peasants entering church, and the children's choir—a film offering a valuable glimpse of life abroad. Also in this group are surveys of Canterbury, and the 'Life in Palestine 2,000 Years Ago' series—*The Home*, *The Day's Work*, *The School*, *The Travellers*, *The Synagogue*. I cannot do better than quote the appraisal given these films in the list:

'*APPRAISAL*. These films should be useful for teaching purposes as historical background films. They could be improved as teaching films if made into a further series of much shorter—five-minute—films dealing with the most important points in each subject. Before showing the films or in the discussion afterwards the teacher should be prepared for comments from the children on the standard of living of the people of Palestine in the first century, which was and still is much lower than in our own country. It is important that the children should not think that the religious ideas of people living in this way are of little value because their standard of living compares unfavourably with that which we regard as essential.

'A further contrast between life in Palestine and our own time is in the leisurely way of working and travelling seen, which may give the impression that ideas given under such conditions are not applicable to people to-day. It is important that both these points should be dealt with, particularly when the films are shown to senior scholars. A handbook is available and will be particularly useful to teachers in answering questions the children might ask.'

Also under the heading of *Documentary* is a large group of missionary films of varying qualities presenting studies of Baffinland, Burma, China, Africa, and India, providing both religious and geographical instruction. Some of these are intended to be described by a lecturer who would, of course, enlarge upon the subjects. A number of missionary films in the past have been filmed by amateurs—that is, by missionaries themselves—and whilst the subject-matter has been extremely valuable, production standards have been low, and photographic quality poor. However, such films have not

usually been judged by commercial film standards, and providing the scenes are *visible*, nearly everyone has been satisfied. Naturally, a missionary, resident in a distant land for a long period, has a wonderful opportunity for filming scenes and events of the greatest significance, but unless he is skilled in film production, the opportunities will, to a large degree, be lost. On the other hand, sending a professional unit abroad is costly, and the only way its services can be brought within reach of religious organizations is by planning to produce a number of subjects during a single visit.

It was by such means that in 1947 I organized the production of a film illustrating the missionary work of the British and Foreign Bible Society in Nigeria and on the Gold Coast, called *That They Might Have Life*. The location work was in the hands of John Page, who has specialized in filming in Africa. It tells of the coming of literacy to the Africans, and how the continent had struggled and survived for centuries without any outside aid or access to learning.

First, primitive Africa is shown—the hardness of the life—battling with the elements—hewing through forests—primitive agricultural methods—and how the inherent artistry of the people found expression in pottery (without a potter's wheel), weaving, on ingenious but astonishingly primitive looms, carving in ivory and wood, and so on. Then the film shows the translation of the Scriptures into Yoruba by Bishop Adaji Crowther, the first Negro bishop, once a slave, and from that point onwards the spreading of knowledge by the written word—family readings, Sunday schools, the establishing of large schools, the building of churches (Lagos Cathedral was designed and built by Africans), and the circulation of the Bible via colporteurs and bookshops in various centres.

This educational film about education is a professional documentary job, and its quality has encouraged other groups to plan the production of films in distant parts. John Page also made *African Nurse* for the Methodist Missionary Society, explaining, in cameo fashion, how an African girl is trained to become a nurse, following her career from start to finish. Such films illustrate local conditions admirably, widen the experience of audiences at home, and provide evidence of practical religion at work.

I have also produced two factual *feature*-length religious films in direct contrast to the kind acted in a studio, which provide both religious instruction and facts about life in other countries. The first was *Visitation*, which relates the origin, development, and present ramifications of the Medical Missionaries of Mary, in Eire and Nigeria. On the religious side, the training of Sisters for the mission

fields is covered in detail; on the medical side the film gives a complete survey of the modern treatment of leprosy; and on the general side, living and working conditions in Nigeria to-day are shown.

The second, *Pilgrimage to Fatima*, tells the story of the Visions which appeared to three Portuguese peasant children in 1917, and how these events led to world attention being focused on the tiny village of Fatima, which promises to become a second Lourdes. In addition to religious education, the film provides considerable information on life in the rural areas of Portugal.

In 1951, I also produced a shorter subject which describes how the Scriptures are distributed in China. It tells how, early in the nineteenth century, Robert Morrison undertook the translation of the Bible into Chinese, and how, from small beginnings, the literature has reached an ever-increasing number of people among the population of four hundred and fifty million. The film shows a cross-section of life in China to-day, ranging from pagan temples to Christian schools; from hospitals to humble wayside hotels at which the colporteurs, laden with Bibles, stop for rest and refreshment. Again, only the factual approach is employed. Nothing is staged, and nobody is called upon to do other than his ordinary tasks.

I am also able to give first-hand information about another type of religious educational film, for, in 1947, I made for the Church of England Films Commission *The Coming of the Light*, which illustrates, with actual scenes and map-diagrams, the coming of Christianity to these shores, and *The Making of England*, a sequel which carries the story on to the time of the Battle of Crécy. Paganism is symbolized by shaded sections advancing or receding on the maps according to the progress made in the spreading of the Gospel through the centuries. At the time of writing no film strips support either of these films, but they are essential, it being quite impossible for anyone to remember all the dates and details presented. In some respects these two films can be regarded as a new departure in religious film instruction. They can serve, too, as a warning to film-makers *not to overload* their educational films with too many details unless each film is designed to be accompanied by a lecture and/or film strip, and further supplemented by printed teaching notes which can be taken home and studied at leisure.

The same Commission also produced a film entitled *Your Inheritance*, explaining the significance of the church in our midst, and giving descriptive details of its interior layout. Ritual is simply explained whilst various ceremonies are being performed—Baptism,

Marriage, Communion. It is a pleasant easy-to-understand film, with good teaching value. When first privately shown, a speaker introduced it by saying its purpose was to increase the knowledge of churchgoers to enable them to speak *with authority* to non-churchgoers, and seek to induce them to attend services.

The missing factor in the religious teaching film world is a *definite* policy which would result in a steady flow of properly planned films. This is due to various reasons—lack of funds, absence of driving force and vision, no sense of urgency, different denominations working independently, inexperience of film production, and inadequate distribution. In 1948, there were, I believe, about 500 16-mm. projectors in Britain being used for religious purposes in churches and Sunday schools. Religious groups and churches cannot possibly plan long-term instruction whilst a mere handful of suitable films is available, and projectors are scarce.

As religious films can very rarely regain production costs from their limited distribution, and as, again, at the time of writing, religious groups have to pay to commercial producers the same high production costs as apply to commercial film-making, the scarcity becomes understandable. The first obvious solution is to differentiate between religious and commercial production, and to devise a method of substantially reducing production costs for non-profit-making religious films; the second solution is to co-ordinate *all* religious distribution machinery—at present divided by denominations—to enable all projectors and mobile projection vans, and *all* religious films of a suitable nature, to be pooled to obtain maximum circulation.

THE USE OF FILM DURING THE 1939–45 WAR

It is important to remember that whilst the last war resulted in an almost total cessation of teaching films for schools, it led to a tremendous increase in training films for war purposes, and to the evolving of a clearly defined system of distribution which, after the armistice, was in the main diverted to peace requirements, and to development of teaching films. I have already referred to the coverage of specialized films addressed to numerous branches of the civilian population—training, informing, inspiring—but to obtain a complete picture of the extent to which film was employed for training during the last war we need to include the services.

Writing in the *Penguin Film Review* (Vol. 4, page 83) on the uses of film for naval instruction, Captain O. F. A. Gollings, R.M., says

that the contribution of the instructional film to the war effort in accelerating the training of large numbers of service personnel and the generally increased efficiency of that training had been indisputably proven. From the small production of seventeen ten-minute reels of film for all three Services available in 1939, production had, by 1943, increased to 533 reels. A process of trial and error was slowly aiding the development of instructional film technique, which, before 1939, was all too often a mere aping of documentary methods. From experience resulted that clarification of the instructional film which was to prove so great an assistance when classroom films were once again made for peace-time purposes.

Various points were defined. First, that the film's potential audience, its knowledge and experience, must be known before the initial stages of production are undertaken. Secondly, 'the film must follow the shortest path between two points'. Padding must be avoided. Simple instruction in essentials was the sole necessity, and a film should be sufficiently short for its content to be retained. When, for example, a film dealt with the big and technically difficult subject of naval gunnery, it was made in several parts, each allowing for the gradually advancing knowledge of the trainee. Other points discovered were that the instructional film must necessarily be an adjunct to the instructor, not a substitute for him; that the film's technical content must be precise and correct, and that production must be carefully devised to allow for the most effective association of picture and commentary, or picture and dialogue, animated drawings being introduced where they can instruct best. As film is intended to be a visual aid, the visuals are its most important feature, and the sound-track is a supplement and assistant to them and should not be permitted to encroach. It was also emphasized, as a result of experience, that film must form an integral part of the training syllabus. It must fulfil a need *otherwise not fulfillable*, or its introduction was undesirable.

The final essential which emerged was that the subject must always justify the use of the *motion* picture—or, in other words, film should only be used where the showing of movement is necessary for instruction.

I recall two contrasting instructional films which I produced during the early war years.

One, *The Use of Oxygen in Flying*, illustrated the dangers to airmen who did not use oxygen when flying at high altitudes. Most of the action was filmed in a compression chamber wherein air conditions at varying altitudes were reproduced. Two men were sealed

inside. One wore his oxygen mask, and remained normal, the other became incapable, and could neither sign his name nor stand up. The film introduced diagrams to illustrate the human breathing machinery, and the effects of not taking oxygen at high altitudes.

The other film was made for the Admiralty—and called *Hints for Instructors*, an instructional film directed at all who instruct! It was extremely amusing, featuring George Curzon, then in the Navy, who gave a sort of one-man revue, impersonating a variety of instructors, good and bad, lecturing and demonstrating to various audiences of trainees. Although primarily a naval subject, the faults it illustrated are common to all instructors, and no harm would be done if it could be shown to teachers everywhere, for it clearly demonstrated teaching errors familiar to us all: talking with one's back to the class; talking too rapidly; talking far too slowly; talking indistinctly; inadequate preparations of apparatus, so that the right examples cannot be found when required, and so on.

The Army Pictorial Service of the Signal Corps of the United States Army was charged with the production and distribution of all films to be used in the training of personnel of the U.S. army service forces, and the army ground forces. The films thus produced and distributed were designed to fit into specific training programmes planned for the development of technical and military skills. In 1945 it was reported that, in the U.S. armies abroad alone, over 10,500,000 hours of the soldiers' time were spent each month in seeing War Department training films—the equivalent of thirty ten-hour working days for 35,000 men. (These figures did not include army air forces.)

In the nine service commands in the U.S.A., and in overseas theatres of operations, film libraries were established, which served as local and regional supply points. There was a central film library at every service command and theatre headquarters, and these central libraries served the numerous sub-libraries, located wherever there was a concentration of troops in training. Both films and projectors were made available to troop units from these libraries upon a daily or weekly basis, and then returned to the film library for inspection and re-issue. As a result of pooling projectors in film libraries it was found possible, by 1945, to give 16-mm. film shows to over 200,000 troops per month, with fewer than 4,000 active projectors.

During a typical month, June 1944, through the use of film library facilities in the continental United States alone, attendance figures for a few of the most widely used films were as follows: *Baptism of*

Fire, 204,164 attendances; *The Negro Soldier*, 349,524; *First Aid for Battle Injuries*, 453,606; *Military Courtesy*, 275,378; *Map Reading* 353,708.

From a summary of the methods of employing film for training purposes by the U.S. Army, the following points emerge. The film distribution and film library programme developed by the Army Pictorial Service of the Signal Corps was unique in these respects: the maximum use was made of the minimum supply of films and projection equipment by the development of a system of film libraries in all service commands and theatres of operation to supply troop units with films and projectors on daily loan; the visual aids co-ordinator in charge of each central film library supervised the correlation of the supply of films for training: distribution met the training requirements of individual troop units: a system of monthly reports of print stock and print use on all films in each library made possible the shifting of films from library to library, or from the continental United States to overseas theatres to meet changes in training requirements and troop strength throughout the world, and provided a ready index to the amount of reserve stock required for all film subjects. Such reports on film use also showed what new production was required, and provided a basis on which to appraise objectively the reaction of training officers to existing films: lastly, a system of projectionist training reduced damage to prints to a minimum.

The lessons so learned in the service sphere were instrumental in turning attention to the development of a wider use of film for educational purposes in peace-time, and as early as 1942 the State Department at Washington was considering this question. Plans were discussed for the exchange of non-theatrical motion pictures with other nations. The objective, it was stated, would be the free display of films about the U.S. in other countries, and the exhibition in the States, through educational and other outlets, of pictures about the rest of the world. 'There would be a huge interchange of cultural, scientific, and educational information via 16-mm. pictures specially produced or edited', declared one source. Film men should be assigned to the principal American missions abroad. They would help the American cultural attachés by exhibiting free American pictures, and would obtain native films and suggest subjects for exhibition in the U.S.A. Many American pictures of this type, particularly technical and scientific films designed for limited specialist audiences, would be sent abroad.

Chapter III

THE HISTORY OF THE EDUCATIONAL FILM IN BRITAIN

FOR MORE than a quarter of a century educational films in small numbers have existed, although in England and Wales, until recently, they did not receive the official recognition they deserved.

The earliest forerunner of the educational film—using the term in its broad sense—might be said to be the shows given at the Royal Polytechnic Institution in Upper Regent Street by the brothers Lumière in 1896—following their exhibitions in France the previous year of 'living photographs'—workers leaving a factory, the demolition of a wall, the Congress of Photographic Societies at Neuville-sur-Saône, and similar events.

Observant people began to realize the potentialities of the new medium, and as a result, news items were filmed and records made of historic events such as the funeral of Queen Victoria in 1901. There was no limit to what film could capture and preserve. These primitive moving snapshots—for the position of a camera was rarely changed, and only one shot was taken—were interest films in embryo—the forefathers of the newsreel and documentary film. Indeed, Cecil Hepworth can well claim to have been one of the first, if not *the* first, person to have shown films '*non-theatrically*', in the language of to-day, when he took round short rolls supplemented by lantern slides, and gave performances in church rooms, mechanics' institutes, and similar places, before cinemas existed.

About 1903, Hale's Tours came into being, and are important to our narrative. They presented panoramic and travelling scenes of various countries projected on to a screen at the end of a room made to represent the interior of a railway carriage—the spectators being given the illusion of a real tour—for the film included pictures of the railway track as the train sped along through beauty spots. When the scene showed the train rounding a bend the carriage was rocked sideways to increase the illusion! Here was a bold attempt to create the right atmosphere. Even the outside of the hall was disguised to

resemble the end of a railway carriage on rails, and the doorman was attired as a railway guard.

Thus film presented actuality—concentrated on real life, and found it unnecessary to concoct melodramatic incidents to attract the public. Film was showing its unique ability to bring distant places to our doorstep. Side by side with the development of longer films, drama, and comedy—the factual film survived in the newsreel and general 'interest' short, though the last was shaped, or misshaped, to provide 'entertainment'—actuality unadorned being considered inadequate for public presentation. Newsreels of the late twenties and early thirties were largely concerned with lively though comparatively unimportant events, whilst intelligent film-reporting remained undiscovered, or untried.

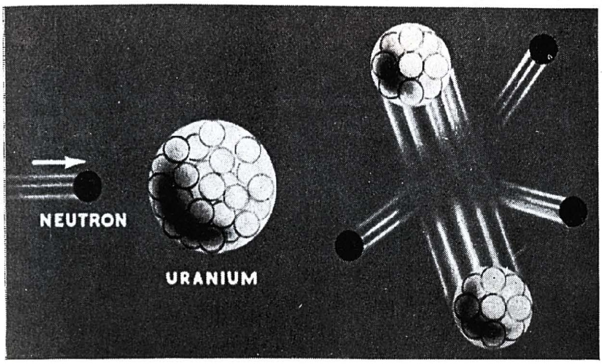
In the early picture houses programmes consisted mainly of a number of very short items—little bits of crude comedy, train rides, jerky journeys through beauty spots, and, sometimes, nature study films, which possessed some educational value. Children attended these shows in such numbers that both teachers and educational authorities were compelled to give the matter attention.

In 1913, the L.C.C. were considering the question of utilizing their Council's school organization for the purpose of enabling head teachers to take parties of pupils to cinematograph entertainments. Although the proposal was rejected, the practice of taking school-children to see certain programmes grew. 'If the animated picture could not be brought to school, school must be taken to the picture.' (B.F.I. Report, cited, page 3.)

In 1917, when the problem was again considered, a change in cinema programmes had occurred owing to the presentation of feature-length films, and it was found that many short films with educational values had vanished, and that those still being shown were usually designed to provide broad entertainment, and were not really suitable for children. And so the problem was not whether children should be taken to the cinema as part of their scholastic training, but whether they should go at all! During the next few years numerous committees investigated this rapidly growing form of amusement, and submitted lengthy reports on its character, but no clear direction was given.

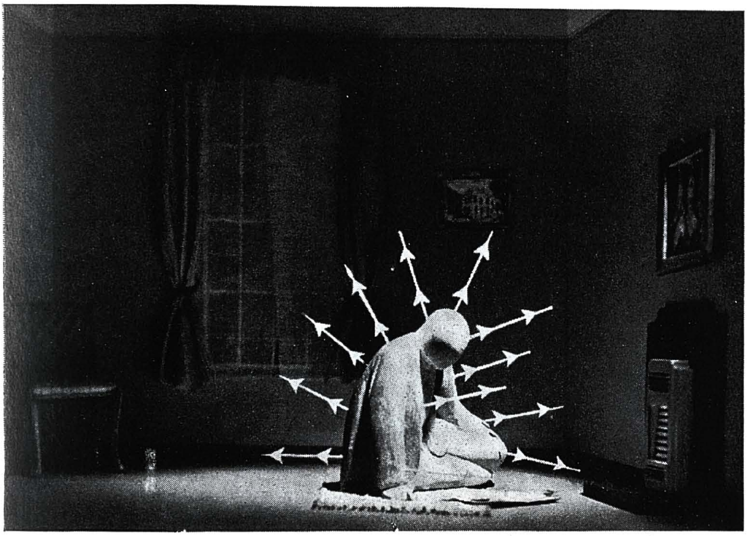
It is interesting to follow the parallel development of the broadly educational documentary film and the more directly educational film—instructional, academic, and so on.

As far back as 1907, the American Charles Urban was experimenting with educational film production in this country, and associat-



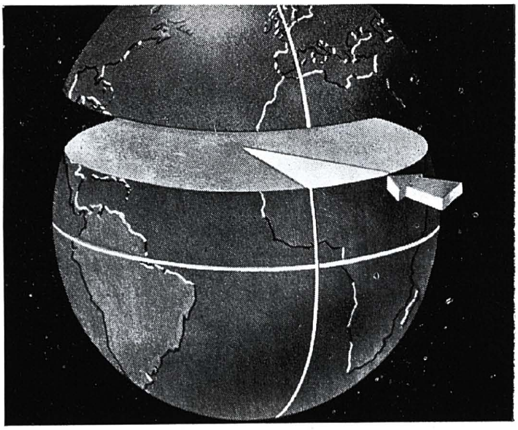
G-B Instructional Ltd

Atomic Physics, *1947. Directed by Derek Mayne. For science classes. This film traces the progress of knowledge of the structure of the atom from Dalton's theory to nuclear fission.*



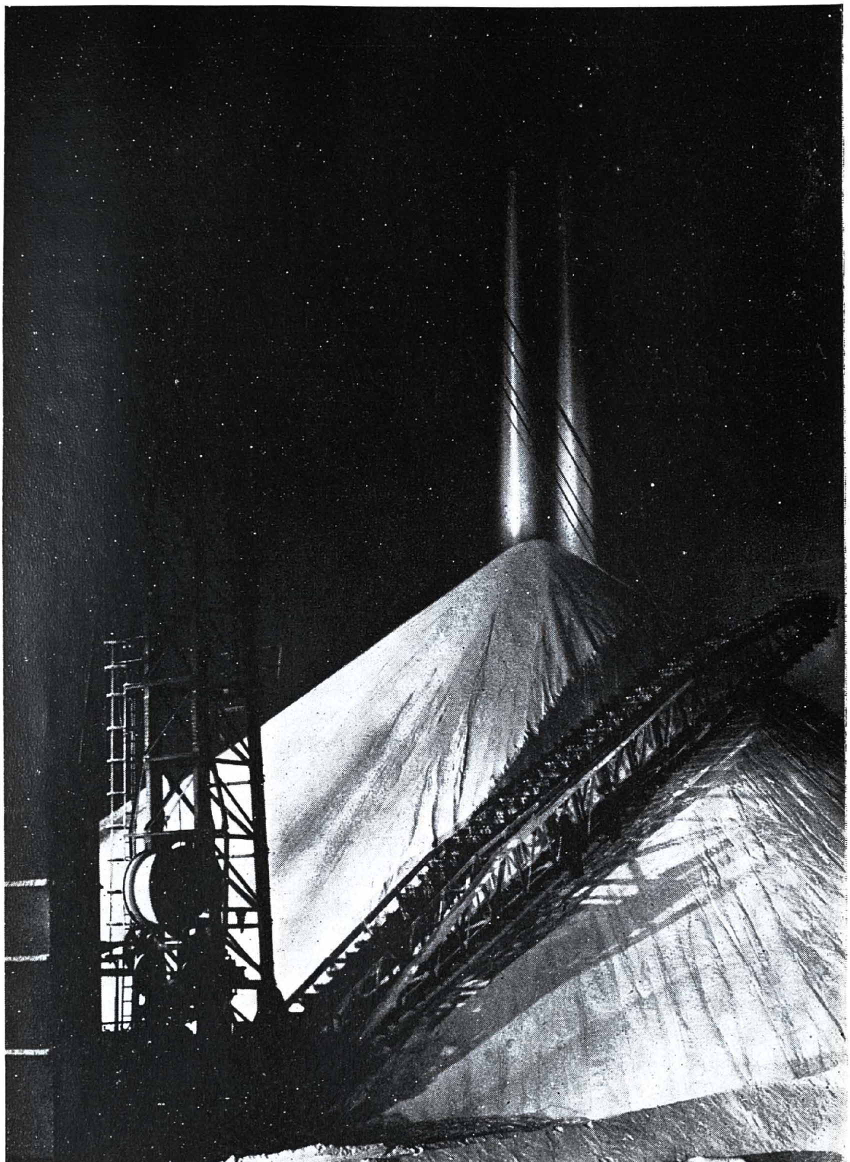
The Gas Council

Radiation, *1946. One of a series of three films on the transference of heat, made by the Realist Film Unit for classroom use. Directed by Alex Strasser.*



Latitude and Longitude, *a highly successful diagrammatic film, 1947. Directed by Margaret Simpson. For physical geography classes.*

G-B Instructional Ltd



Imperial Chemical Industries Ltd

Harvest from the Skies, *1950. Made by the I.C.I. Film Unit, directed by Graham H[illegible]lo[illegible]. The story of the inception and growth of the Billingham Division, to-day a huge chemical [illegible]y manufacturing nitrogenous fertilizers and other industrial products.*

Associated British-Pathé Ltd

Drifting, *1949, which shows, both by live action and animated diagram, the method of catching and storing herrings. Directed by John Monkman.*

Imperial Chemical Industries Ltd

This is Salt, *1949. Made by the I.C.I. Film Unit. Directed by Gordon Begg. Telling of the history, production, and many uses of salt. One of a series designed to illustrate the I.C.I. organization to its employees. For general audiences and as a background film for schools.*

Catholic Film Institute

Pilgrimage to Fatima, *1950, shows how the Portuguese village of Fatima has become world famous, second only to Lourdes, since Visions were seen there by three children in* 1917. *A religious feature film made by Andrew Buchanan.*

Filiae Matris Boni Consilii

The Master Calleth Thee, *1951, employing symbolism and mime, explains the character and work of many religious Orders. Also made by Andrew Buchanan.*

with him was Percy Smith, then beginning to make nature films. In 1913, Urban issued a catalogue of educational subjects containing some 2,000 titles, the majority being botanical and biological, others simple travelogues. With the outbreak of the 1914 war Urban returned to America, and many if not all of his negatives were lost, save for those he took with him. As far as I know, educationalists and others interested in such early films have no further records of Urban's vast output, but by a coincidence I can throw some light both on the character and quality of this material.

On his return to America, Urban produced a series for commercial release called 'Movie Chats', mainly composed of brief educational sequences, but 'dressed up' to appeal to cinema audiences. He sold the United Kingdom rights of the series, and sent over large numbers of *positive* prints of each issue (it is not thought that he sent 'dupe' negatives). In 1924, the directors of Ideal Films Ltd, by whom I was then employed, acquired all the available *prints* of the series packed in nearly a hundred crates, and passed them over to me with instructions to remake the material into a new magazine series. And so from Urban's 'Movie Chats' (positives only) I created the first twelve issues of the series which became famous as 'Cinemagazine'. I have reason to believe that this material contained most of Urban's early educational productions, for it abounded in nature studies, simplified science, and travel sequences.

Just before the first war Ponting showed his film of Scott's Antarctic expedition, *190° South*, at the London Polytechnic, and although the war disorganized his plans, this factual film awakened many people to the possibilities of the new medium.

In 1919, the educational film pioneer, H. Bruce Woolfe, established British Instructional Films Ltd with the intention of producing films specifically for teaching purposes. H. Bruce Woolfe was one of the first men in Britain to realize the importance and tremendous possibilities of educational films. As can well be imagined it was no easy matter to obtain adequate finance for such a venture. Few people took films seriously, and fewer still believed in the possibilities of serious films. The market was practically non-existent, but Bruce Woolfe was determined to reveal the immense teaching possibilities of the medium, and he persevered. In 1921, Percy Smith joined the company and made some biological and botanical subjects, the majority of which were distributed in commercial cinemas in order to make sufficient money to maintain the organization, and to provide funds for the building up of a film library of educational material. After the films had been released commercially,

they were re-edited, the captions rewritten to make them suitable for the classroom, and listed as educational films. Thus there were two versions of each subject. Soon after the end of the first war, Bruce Woolfe made *The Battle of Jutland* and, if I remember rightly, he employed tiny model ships on map surfaces which traced the battle action accurately and fascinatingly. This film was released commercially, and the revenue obtained from it enabled the company to continue during the difficult days of the twenties.

Teachers everywhere were giving increasing attention to film. The interim findings of a group of Northampton teachers on the possibilities of the use of film in the classroom were published in *The Geographical Teacher* of autumn 1920. A number of them engaged on the compilation of this Report were geography specialists who had obtained projectors and given lessons in which film played a major part. Similar early experiments were being carried out in various parts of the country, and by the end of 1920 a number of teachers were employing films, usually with the authorization of educational authorities, such as the L.C.C., Manchester, Birmingham, and Glasgow. Reports made on the results were available for study by a committee set up by the Imperial Education Conference of 1923, authorized to carry out a thorough examination of the implications of the problem, under the chairmanship of Lord Gorell.

In 1924 appeared the *Report of the Committee on the Cinematograph in Education* (H.M.S.O.) available to the public. It declared that 'a strong *prima facie* case had been established in support of the view that the cinematograph is specially adapted to give assistance in the teaching of nature-study, geography, science, and scientific and industrial processes. . . .' The British Film Institute's *Report on Geography Teaching Films* (1948) stated that the former Report could be regarded *as a landmark in the history of the use of the cinema in the classroom.* It drew attention to work done, encouraged experimenters to proceed further, and interested others hitherto unaware of recent developments. Moreover, it showed film producers that possibilities existed in the school market.

Despite this initial enthusiasm there was little progress, for educational authorities, faced with the heavy expense of installing suitable apparatus, were slow to move, and producers were not prepared to make films for so limited a market.

In 1926 Miss Mary Field joined British Instructional Films and began to make diagrammatic instructional films, to which I will refer again shortly. British Instructional Films continued to fight a most difficult position, created by inadequate markets and lack of

interest in teaching films, until 1933, when Mr Isidore Ostrer decided to set educational film production on its feet, with the result that British Instructional Films became Gaumont-British Instructional Ltd—an organization which has since become world famous.

In the twenties a new school arose, with a creative aesthetic approach to film. In 1922, Robert Flaherty made *Nanook of the North*, the first documentary production of real importance, which 'discovered' the natural drama in the world and shaped film to present it imaginatively. Flaherty, and Cavalcanti too, gave the realistic film an aesthetic rather than an educative importance. It was Cavalcanti, however, with his *Rien Que Les Heures*, 1928, and Ruttman with *Berlin*, in 1927, who led the way for documentalists to turn to the life around them, and to harness film to serve serious purposes. In England, under the auspices of the Empire Marketing Board, a new documentary school was emerging, and in 1929 John Grierson joined it. With *Drifters*, showing the every day-and-night work of the Scottish herring fleet, he established certain film-making principles, and set aesthetic and technical standards for future documentary film production which remain an inspiration to-day.

For Grierson, documentary film had a definite mission over and above its value as an art form. Believing that education must be extended beyond the classroom and concern itself with the projection of facts about the world we live in, he decided film was *the* instrument. It would 'bring alive to the citizen the world in which his citizenship lay'; it would 'bridge the gap between the citizen and his community'. Documentary would be the 'living description' of the world. This was something far more than the planning of classroom films. It was visualizing a genuine creative contribution towards wider national and international understanding. Grierson has thus defined the documentary film:

'I have defined it before as the creative treatment of actuality. What one means by that is that actual events have been taken, but analysed from the creative point of view, and given some angle, some form of narrative, or dramatic meaning . . . it is not a discursive description of natural events, but a creative one.'

In 1929 investigation was carried out jointly by certain local education authorities, and by the National Union of Teachers, in fifteen schools in Middlesex. Both the programmes of films and the apparatus were lent for the purpose and taken from school to school. The films projected were not especially produced for educational purposes, but selected from the miscellaneous material available to teachers at that time. The Report issued at the conclusion of

the experiment declared that the value of film in the classroom had been amply demonstrated, and that it could make a great contribution to good teaching. It stated that with certain subjects films, correctly made, were going to prove indispensable. Inspired by this Report, the Education Department of the Glasgow authority embarked upon its own investigation to determine the value of films in schools, and experiments were based on their use in geography teaching. The general findings in Glasgow tallied with those of the Middlesex experimenters. The Glasgow Report stressed the need for teachers to receive training in film technique, and urged the production of specially prepared teaching notes to accompany each film.

In 1932, Mr J. Fairgrieve, a pioneer in the use of geography teaching films, speaking at the Annual Conference of the Geographical Association, stated that some 200 projectors of various makes were being used in classrooms in different parts of the country, and that progress was being made in the provision of suitable geography teaching films.

In 1935 the Manchester education authority conducted an investigation to determine which types of apparatus were most suitable and reliable, and how teaching films could most profitably be used. Its Report stressed the need for films to be produced especially for teaching purposes, and pointed out that there were very few then available.

In the early thirties, Grierson gathered together a small group of people drawn to his ideas and ideals, and embarked on his mission of bringing actuality to the screen. The first films sought to interpret the working of the everyday world in terms of industry, agriculture, and communications, and sponsorship by large concerns led to the production of subjects on public health, slum clearance, town planning, home management, and imaginative presentation of the public services—all or nearly all of these films containing constructive comment on social conditions.

At this time the average cinema programme consisted of a single feature film supported by three, four, or five miscellaneous short films, and so space was available for documentary subjects, though only a few of them were regarded by distributors and exhibitors as suitable for commercial release, for they lacked 'entertainment'. Life on the cinema screen was glamorized. Documentalists were averse from sugaring pills. However, a proportion of these virile new films found their way on to public screens, and were praised by those discerning people who were tired of fictional feasts and unrelieved un-

reality. Ironically enough, as documentary films improved both in quality and methods of presentation, the commercial market diminished owing to the institution of double-feature programmes, and, finally, there was no market at all.

Short films received no protection under the Renters' and Exhibitors' Quotas established by the Cinematograph Act of 1927, which continued to operate until 1938. Here was a crisis. An intelligent use of film had arrived, but the screen was otherwise engaged.

Very well, thought the documentary people, if we cannot reach the public in cinemas we will take our films to them through other channels. We will hire halls and schoolrooms. We will go to villages where no cinemas exist. We will show our films from vans at street corners—and we will make no charge. We shall not deprive commercial cinemas of their audiences for we are not out to provide entertainment but enlightenment.

Thus what has become known as non-theatrical distribution began. It was uphill work, for both the public and exhibitors, generally speaking, regarded film as a medium for providing entertainment, and could not easily understand its use for more serious purposes, especially at free shows in club, town hall, and other familiar but rather uninviting places. Honesty of purpose, really informative films, and intelligent presentation gradually won the day, and, by 1938–9, documentary films had established themselves *outside* the commercial cinema. From 1934 to 1939, GBI was the only professional company in Britain producing films specifically for teaching on an extensive scale. In 1934 it embarked on a five-year programme of production which resulted in 239 films being made. Of these, 199 were with sound, and intended mainly for secondary schools. Many of the films in this output (some of which are in circulation to-day), formed the nucleus of the company's library catalogue until 1946.

The original intention of GBI to produce films with sound was considerably modified when they proved commercially unsuccessful owing to the shortage in schools of suitable projectors equipped with sound, and 132 of the above-mentioned sound films were ultimately issued in silent form without commentary or captions, to leave teachers free to provide their own descriptive commentaries. Later, this method of reducing sound films to silent films was stopped, and forty silent films were produced. Some were new silent versions of subjects originally filmed with sound; others were compiled from material taken from earlier films intended for young children. Films made during the five-year silent film programme included sixty-

seven dealing with biological, botanical, and natural history subjects, forty-eight covering physical training and sports, and thirty-nine geography films.

The nature films originated by Bruce Woolfe in 1919, and developed under the direction of Percy Smith as the famous 'Secrets of Nature' and 'Secrets of Life' series, each lasted from ten to fifteen minutes, and all the methods which make film valuable as an aid to teaching were employed—slow motion, ultra-rapid photography, and micro-cinematography. The patience of Percy Smith was equalled only by his love for his work. He worked alone with the apparatus he made—combining the qualities of artist, scientist, and engineer. In his *Development of a Chick*, one of the earliest biological films made, the camera work was carried out in a temperature of 120 degrees, necessary for incubation. This created various technical difficulties, the chief being condensation on the camera lenses. His film studies of flowers, insects, marine life, and birds were truly picture poems of great and revealing beauty. (A short while before he died, Percy Smith was enthusing over the way nature adorns the most unlikely places, and explained to me how the seeds of many flowers were dislodged during air raids, and, wind-borne, travelled long distances, taking root in all kinds of unusual spots—including city debris.) In 1937, three-minute sections were made of a number of the films to enable the teacher first to present a complete film, and then to concentrate upon certain sections of it in subsequent lessons without having to run through the entire film again.

Mary Field and Bruce Woolfe then instituted a system of making films in collaboration with eminent experts. Dr Julian Huxley was invited to advise on biology subjects; Dr Salisbury on botanical films; and the historians, Professor Namier and Professor Gooch, collaborated with Mary Field in the making of diagrammatic films.

The collaboration of educationalists was sought to determine the types of films most in demand. GBI was advised by a panel of Scottish teachers on the production of geography films; by the Central Council for Recreative Physical Training, and the Football Association on sports subjects; by the London Teachers' Association; and, later, by the British Film Institute's Educational Panel and its sub-committees, on which many professional teaching organizations were represented, and which included such eminent experts as Professor Winifred Cullis and Sir Charles Petrie.

Experience showed that a film approved by one professional organization was not necessarily suitable for use by teachers generally, and that committees consisting of representatives of a number

of bodies often found it difficult to agree when preparing or vetting scripts for production. Another problem arose when teachers complained that during the writing of scripts and also whilst production was in progress, there was little or no provision for collaboration with producers, who, it was claimed, could not be expected to know the exact requirements of teachers; even fully approved scripts were no guarantee that the completed films would be acceptable, for a producer's interpretation of a scene could easily be incorrect from the teacher's viewpoint.

Despite all such difficulties, however, the GBI experiment achieved much. It showed that film could be used for teaching, and that some subjects in the ordinary school curriculum could be vitalized by such visual aid. It proved, too, that the making of classroom films was not, in pre-1939 conditions, a commercial proposition. Although the hire and sale of GBI's teaching films showed a steady increase during the five years, the number of projectors in British schools was inadequate, and production costs could not be regained without obtaining additional revenue by releasing 'popularized' versions of the films in cinemas.

The 1939 Annual Report of the British Film Institute stated that, 'during the last few months, the uneconomic character of the revenue from educational films has led to a virtual standstill in production'. During the 1939–45 war, GBI produced a series of teaching films on scientific and geographical subjects for the British Council, and though primarily intended for showing overseas, they were made available in Britain through the Ministry of Information.

As I have said, numerous educational films employ diagrams to elucidate action needing special emphasis, or which cannot be seen clearly under natural conditions. Because of this diagrams are sometimes regarded as mere supplements (which, of course, they are when so employed), but it needs to be emphasized that the diagram film is distinct from all other types, and should be classified separately. One of the earliest examples of the diagrammatic instructional film takes us to America for a moment—where in 1924 it illustrated the mechanism of a motor-car. I give that example here because at the outset such films were employed only to illustrate mechanical movements—the idea evolving from the wall diagram.

In Britain the possibilities of diagram films for teaching remained unexplored until 1926, when Mary Field began experimenting in this direction. The first diagram film she made was *Naval Warfare in Nelson's Time*. Mary Field was primarily responsible for the steady development of the diagram teaching film in the thirties,

realizing the value of animated maps and charts in the teaching of geography, history, and economics. In 1934, following the stabilizing of GBI, she embarked on an ambitious programme of diagrammatic film work.

Production was undertaken in collaboration with various experts, and co-operation sought from the London Teachers' Association and the B.F.I. Educational Panel in order to find out what methods of presentation were most suited to teachers' requirements.

With Professor Namier as adviser, GBI produced a diagram film on *Growth of the Franchise*. Professor Gooch advised on *The Expansion of Germany*. Other diagram films were *The History of the British Railway System*, *Aspects of the Coal Industry*, *Vision* (on the structure of the eye), and *French U* which explained the movements of mouth, lips, and tongue during the correct pronounciation of that vowel sound.

Mary Field, in collaboration with Professor Poligne of Manchester University, produced the six-reel diagram film *Money and Unemployment*, the first production on economics employing this technique, which proved highly successful. In both economics and history, GBI's diagram films led the world. Further successful experiments combined diagram and actuality, as in *History of the English Language*, made for the British Council. *History of Three Oceans*, inspired by Professor Newton, late Rhodes Professor of Imperial History in the University of London, employed an advanced technique along the same lines. The diagram film is as distinct from the factual film as is the latter from the fictional film.

It remains to give a brief account of other experiments in England and Wales during the thirties before surveying the development in Scotland, which I shall deal with separately.

A certain amount of film production was carried out by teachers themselves during the late thirties, but the extent of their work cannot now be assessed, for many records were lost during the war. However, in 1944 the Arts Enquiry, organized by Political and Economic Planning, sent a questionnaire to all the local education authorities in England and Wales, the findings being published under the title *The Factual Film*.[1] The replies showed that teachers in thirty-four areas had experimented in film-making. Some of their films, it was stated, were comparable in educational value to professional films, with the added advantage of providing teachers with films about local conditions, local affairs, and local geography. The subjects lacked technical quality because few teachers had or could

[1] Oxford University Press, 1947.

obtain professional tuition in the use of camera and lighting, and their financial resources also were usually strictly limited. None could afford sound equipment, of course, and there was no recognized distribution channel for their efforts, and so no revenue. But their importance lay in the fact that the films were produced by teachers who knew exactly what they wanted, even though they did not know exactly how to obtain the finest technical results.

The Dartington Hall Film Unit, benefiting from a small private endowment, and being part of a larger organization, was able to do more than most teachers' groups embarking on production. The Unit was started in 1934 by a teacher at Dartington Hall School, the late William Hunter, who intended to discover which types of films would prove most valuable in the classroom, particularly those dealing with geography, his own subject. Up to 1939, the Unit produced twenty silent films, mainly on economic geography, and various aspects of rural life, which were distributed commercially by Educational and General Services, and the films have been used in schools in many parts of the country. During the war, the Unit continued production with some professional assistance, and made on an average two films a year.

EDUCATIONAL FILM DEVELOPMENT IN SCOTLAND

Scottish educational film achievements have been outstanding. The movement grew out of the individual efforts of teachers and local groups, assisted by the generous support of the Scottish education authorities, and the Scottish Department of Education. The movement is broadly based, comprehensive, and well organized, all advisory bodies being co-ordinated for a common purpose—the development of visual aids in schools.

The advantages of a clear-cut organized plan become apparent when the pre-1939 position in Scotland is compared with the position in England and Wales during the same period.

In 1939 (July) it was found that the 3,150 Scottish school departments possessed about 378 projectors, mostly for silent films. In England and Wales, with their 31,000 grant-aided schools of all types (including training colleges), there were about 1,400 projectors, mostly for silent films. (From this figure must be taken the number of machines owned by universities and L.E.A's.) Thus there was a far higher proportion of projectors in Scotland than below the border. The work received a clearly defined direction in 1934

when the Scottish Film Council was formed 'to encourage the use and development of the cinematograph for educational purposes'. It was to be financed by an annual grant from the British Film Institute as well as from local education authorities. Varied educational bodies were represented on the Council. They included: The Association of Counties and Cities in Scotland: The Association of County Schools in Scotland: The Association of Directors of Education in Scotland: The British Institute of Adult Education: The Scottish Branch of the Cinematograph Exhibitors' Association: The Educational Institute of Scotland: The Federation of British Industries: The Federation of Scottish Film Societies: The National Committee for the Training of Teachers: The Scottish Churches Film Guild. Not more than six others could be co-opted to serve as members of the Council by these nominated members.

From the outset it was agreed that the Council should work in close co-operation with the interested central and local government bodies. Time has shown that the Scottish local education authorities have worked very closely with the Council, twenty-five out of thirty-five education committees making annual grants towards the maintenance of the Film Council's Scottish Film Office.

The main functions of the Council were precisely defined: to provide a reliable information and advisory service on all matters pertaining to films; to co-ordinate and assist activities of such voluntary bodies as existed; to stimulate the growth of other specialist film bodies, and to undertake work which lay outside the sphere of existing bodies; to encourage and organize research into film problems; to act as a link in film matters between the trade, local and central government bodies, and voluntary film organizations; and to manage the Scottish Central Film Library.

Among the bodies represented on the main Council was the Scottish Educational Film Association (S.E.F.A.). This was the first voluntary body in Scotland to embark upon the direction of educational film activities. Inaugurated in 1934, its development has been rapid and its activities highly successful. In 1939 it represented 17 per cent of the teachers in Scotland, its membership being about 5,000, and it had branches in 20 out of the 35 Scottish education areas.

The aims of S.E.F.A. were defined in its Annual Handbook. They included: the co-ordination of all educational film activities on a national basis; the development of the use of the cinematograph in educational work by the organization of a panel of lecturers; the holding of exhibitions of educational films and equipment, and of

meetings at which films were shown and criticized, and discussions invited; collecting and providing information about educational films and equipment; and the encouragement of approved experimental work in production.

A further aim stressed the need for co-operation with the Scottish Film Council in the development of its educational panels, and in the founding of branches of the British Film Institute.

An organization for reviewing educational films was established in 1936 under a co-ordinating committee which represented S.E.F.A., and the Film Council. The quarterly *Scottish Educational Film Review* gave reports on films written by teachers' study groups, and by specialist panels, the main purpose being, it was stated, to provide teachers 'with reliable reports on existing films', it being hoped that such criticisms would eventually influence the production of better (more suitable), classroom films.

Further to promote this object, in 1938, the co-ordinating committee wrote to teachers asking for details of their film needs, and their views on educational film production. A number of suggestions were received, and an Advisory Committee was established to consider them further, and embody them in a general report setting out the main principles to be followed. In 1940 the Committee published *General Principles Governing the Production of Educational Films with Lists of Subjects for Films*. This Report dealt only with the making of silent subjects, for during this period nearly all projectors were for such films. It was stated that the Committee would later consider the place of sound films in the classroom.

Under the auspices of the S.E.F.A. a number of teachers' production groups were formed in Ayrshire, Lanarkshire, Glasgow, and Edinburgh, which worked in close collaboration with the main Association's local branches. Assistance was provided for all amateur film-makers by the Council's Amateur Cinematography Panel. The original and highly intelligent films being made by amateurs had been fully recognized for some while, and viewed with favour, first because such producers were free to exercise their imaginations without being hampered by commercial demands, secondly because they worked with extreme economy.

The Association offered guidance to teachers in the presentation of films in classrooms, and at local branch meetings demonstration lessons were given, and then discussed.

During the war the Council, acting under the guidance of the Scottish Regional Office of the Ministry of Information, organized film shows for children evacuated to remote areas. The resources of

the Council, the Central Film Library, and the S.E.F.A. were pooled, and the scheme was operated by twenty mobile film units manned by teachers experienced in handling portable projection apparatus and in the presentation of films. Between October and December 1939, 1,484 shows were given to 152,549 children. The scheme, in addition to fulfilling its main object of carrying films to evacuated children, did much to stimulate interest in the use of films in rural schools, accessible only to mobile units, unless served by electricity via grids.

The war period resulted in a considerable expansion in the use of educational films. S.E.F.A. set up a Youth Welfare Films Committee, and in 1942 a series of regional conferences of youth leaders on the use of film in clubs was arranged. To-day, educational films are included in the Scottish Youth Leadership Training Association courses, and lecture notes for the training of leaders in film technique, projector-use, and presentation are available.

During the war, universities, technical and teachers' training colleges, rural institutes, and local education authorities made use of the Scottish Central Film Library. As in England and Wales, there would have been many more users but for the projector shortage.

In 1940 the Council arranged a series of film lectures for the forces, given by voluntary lecturers, mostly secondary school teachers. Furthermore, the Council encouraged Service units to form committees to organize their own film appreciation lectures, and, to develop the plan, Army education officers met to discuss the uses of the film in education.

In 1938 at a conference of Scottish directors of education organized by the Film Council, it was decided to set up a Scottish Central Film Library as a necessary adjunct to the development of the movement in Scotland. The British Film Institute was approached and agreed that Scotland was the place most likely to benefit from the experimental establishing of a regional film library. Accordingly, the Carnegie United Kingdom Trust made a grant of £5,000 for a period of three years towards the formation of such a library. At the end of this experimental period, the Council issued a Report assessing the progress made. The Library was managed by the Council, and administered by a committee composed of representatives of all the main educational bodies and authorities in Scotland, and supported by the Scottish Department of Education. According to the 1943 Report, the Library's functions were: to supplement local education authorities' libraries; to serve remote areas and small local authorities where the setting up of film libraries was (for the

present, at least) an uneconomic proposition; to supply specialized films, as, for example, subjects which no local education authority would be justified in buying owing to the very small demand likely to be made for them; to act as a central purchasing agency for films for libraries, and to supply films to bodies and individuals in Scotland wishing to use them for education purposes; to fulfil any other functions deemed advisable by the Library Committee.

The Library possessed 200 films, but the number soon increased both by gift and purchase. By June 1942, the Library possessed 955 films, mostly silent, while 223 subjects, mostly sound, were held on behalf of the Ministry of Information, which used the Library during the war as a distribution centre serving Scotland. In the same month, there were 1,313 registered library members, composed of schools and adult education organizations. Special cheap rates had been secured for the bulk purchase of education films made by commercial firms, whilst several organizations—British Commercial Gas Association, Petroleum Films Bureau, and the Dominion governments—gave a number of sound films to the Library free of charge.

The presentation of subjects which did not justify being filmed, being explainable by strips, was developed by the Library Committee, and the Film Council's History Panel produced a number of strips, copies for sale to schools being acquired by the Library. In 1940, the Scottish Educational Film Association began a film-strip reviewing scheme, and about the same time the Committee announced that the Library should become the central purchasing agency for film strips for Scottish schools.

The Report issued by the Scottish Central Film Library of its activities stated that the experiment proved that, given an initial subsidy, regional film libraries could be organized on an economic basis. In June 1942, 678 Scottish schools, together with 635 adult bodies, and 100 service units, were regular users of the Library, and these numbers were limited only by shortage of equipment, owing to war conditions. The Library has proved of inestimable value to the Scottish educational film movement. One centre deals with the requirements of all educationalists, carefully selecting material and providing professional advice in the selection of programmes. The wide range of available films has enabled teachers to plan their programmes systematically, and so to fit them into existing curricula. The Library, states the Report, has given easy access to a supply of suitable educational film material at reasonable hiring rates, and both schools and adult groups have the opportunity to use

films extensively. Invaluable experience in the costing and organization of regional film libraries has been gained, and will serve as a basis for discussion on the setting up of similar organizations in other parts of Great Britain.

The work of the Film Council, apart from the Library, was carried out on an annual income of some £800, made available principally by voluntary contributions. Welcome though this money was, lack of funds often restricted activity, and increased grants both from local and central government education bodies were felt to be desirable if the work was to expand. However, despite difficulties which are inevitable in the inauguration of any such movement, progress in the use of the film in education in Scotland in pre-war years, and during the war, was considerable. Insufficient attention was, perhaps, paid to the need for professional film production, and the establishing of a basis of co-operation between producers and teachers, but the organization that was steadily built up during those years was very impressive. It has grown out of the demands of local groups, and fulfils more nearly the teacher's needs; it has full official backing and yet retains the independence which is necessary in education.

To-day, educational film activity in Scotland is centred in the Scottish Film Office in Glasgow—headquarters of the Scottish Film Council (the British Film Institute of Scotland), the Scottish Educational Film Association (representing some 5,000 teachers throughout Scotland), the Federation of Film Societies, and the Association of Scientific Film Societies of Scotland.

The S.E.F.A. now has 16 branches—Edinburgh, Glasgow, Dundee, Aberdeen and North East, Inverness, Lanarkshire, Ayrshire, Dumbartonshire, Fife, Midlothian, West Lothian, Clackmananshire, Stirlingshire, Perthshire, Shetland, Renfrewshire.

The activities of the Association include the holding of meetings of teachers to keep them informed about the use of films in schools and actual production as well as to help them in appraising films, research, and the organizing of film shows for children which would normally be held by the trade. Those who attend the meetings are thus in a position to pass on this information to others interested in using the educational film.

There are six production groups—Edinburgh, Glasgow, Aberdeen, Dumbartonshire, Ayrshire, and Clackmananshire—and the films and film strips they produce usually have local interest, and are made for use in local schools, though several have been taken by the Scottish Central Film Library for wider distribution, and

some of the smaller libraries of local education authorities have acquired them too. A conference of all these production groups is held annually to survey work done, compare notes, share and solve technical difficulties, and to plan for the future. Evidence of the Association's research work was given in the following admirable publications, which attracted much attention both at home and abroad: Research Publication No. 1. *Attendance of School Children at the Cinema*, 1945; Research Publication No. 2. *The American Way of Life as portrayed in Film Strips—An Experiment in Visual Education*, 1947. (Originally prepared for the U.S.A. Government.) Research Publication No. 3. *A Comparison of the Efficiency of Sound and Silent Films as Teaching Aids*, 1947.

In conjunction with the Scottish Film Council, the Association has published *Sound Films in Education*—an interim report dealing with the place of the sub-standard sound film in the general provision for visual education in schools, with an historical survey. The Edinburgh branch of the Association completed, in the latter part of 1948, a survey of children's cinema clubs in the area, and issued a report.

The quarterly *Scottish Educational Film Review* gives the considered opinion of Scottish teachers on classroom films. The Association encourages the various local education committees to install equipment in schools, and has been instrumental in developing visual education in many areas.

The following recent figures give the number of the various types of projectors in Scottish schools (or ordered by them): silent projectors, 1,062; sound projectors, 160; film-strip projectors, 856; micro-projectors, 53. In addition, a large quantity of epidiascopes[1] and optical lanterns are in use.

Edinburgh Education Committee has offered courses in cinematic art under the further education scheme. The first course in the manipulation of visual aid equipment attracted some 200 students, of whom 180 were teachers. In the second course on this subject the enrolment was fifty, of whom some twenty were youth leaders. A practical course is also offered on the technique of production, the class actually learning with professional apparatus. Then there is a film appreciation course which has made an exhaustive study of the development of film from the earliest days until now.

In addition, what must be about the first, if not the first, cinema club for evening-class students was run in Edinburgh during the winter of 1948 under the auspices of the Edinburgh School of

[1] See p. 166.

Salesmanship. The lecturers on these courses were an experienced Scottish cameraman, a cinema engineer, and a film critic.

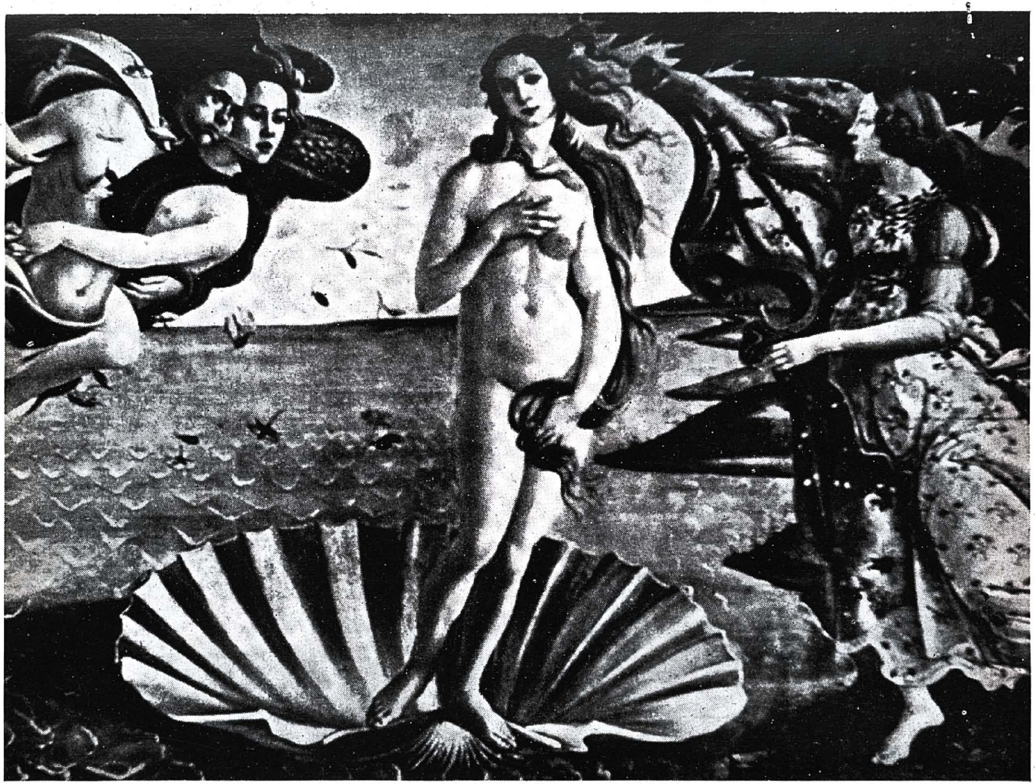
Completing this general picture of widespread and well-organized development of film for educational purposes is the Scientific Film Society in Edinburgh. Since 1947 Edinburgh itself has become the centre of a great annual International Film Festival, organized by the Edinburgh Film Guild. At these festivals the finest examples of documentary film-making are shown to audiences gathered from all parts of the world.

In the years to come Scotland will be remembered for the major contribution made by its educationalists in the development of the film.

The outbreak of the second world war saw film-conscious governments on both sides harnessing the power of the screen to their respective war efforts. They enlisted the aid of the documentalists, and the non-theatrical system of distribution for large-scale propaganda directed to training, informing, and inspiring. Non-theatrical networks were taken over and expanded, leaving no corner of Britain beyond reach of the mobile projector. In addition, the cinemas which had ousted the documentary film were compelled to give programme space every week to films sponsored by the Government via the Ministry of Information. Here was education by film in the widest sense—educating not only mixed audiences in cinemas, but in halls, air raid shelters, and anywhere people gathered, but catering also for specially grouped audiences—doctors, farmers, wardens, cooks, merchant seamen. This practice of showing special films to particular sections of the community survived the war and is a feature of film education to-day.

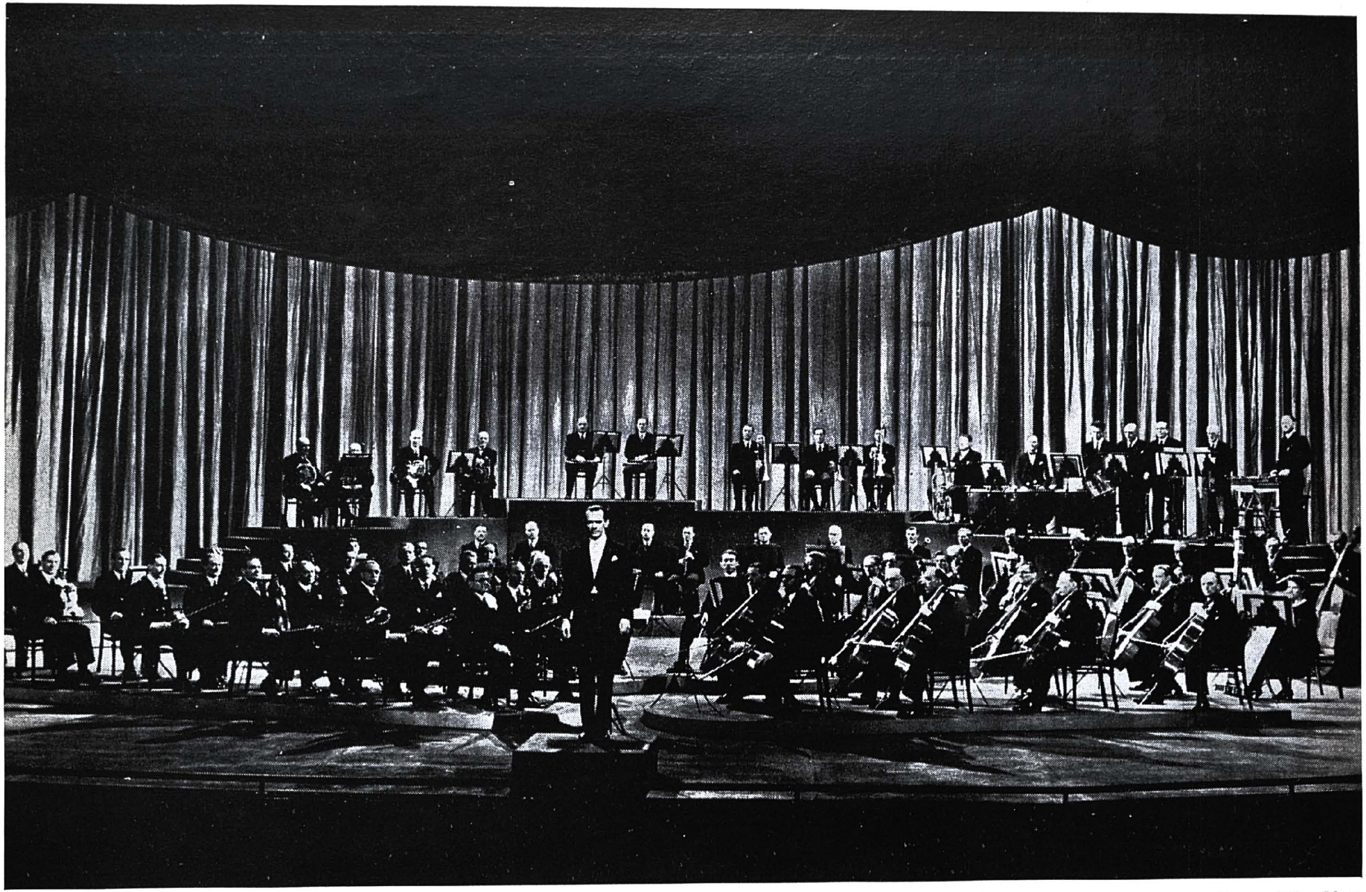
As I said at the beginning of this chapter, it is only recently that the educational film has received widespread official recognition in England and Wales despite the fact that for many years committees have been appointed to investigate their value, reports have been published, and experts have wrangled over their inclusion in school curricula. Perhaps the first reason why no decisive steps were taken until recently was that films were too novel a method of teaching; the second, a scarcity of films; the third, the scarcity and high cost of projectors. But by 1944, considerable progress had been made, and the teaching film was generally accepted.

In that year, the Ministry of Education took an important step by commissioning the Ministry of Information to produce, for 'experimental' purposes, a series of films for use in schools. One



National Film Library

L'Allegoria di Primavera ('Allegory of Spring'), *brought some of Botticelli's greatest paintings to the screen. Made by Luciano Emmer and Enrico Gras, pioneers in the development of film for presenting works of art.*



Crown Film Unit

Instruments of the Orchestra, *1946. Directed by Muir Matheson. Sir Malcolm Sargent's analysis of an orchestra playing Benjamin Britten's Variations and Fugue on a Theme by Purcell. Made for the Ministry of Education.*

example was *Houses in History*, which showed the development of the domestic architecture of Britain, illustrating how modern houses have been evolved from the best of the past. Another was *Instruments of the Orchestra*, which analysed the composition of a symphony orchestra conducted by Sir Malcolm Sargent, who explained the purpose of each instrument, singly and grouped—woodwind, strings, brass. This film showed that the music lesson can be revolutionized, and the smallest details of a demonstration by sight and sound of the functions of the various instruments and the works of composers clearly seen and heard by everyone in a large audience. *The History of the English Wool Trade* serves as a good example of how film can supplement the textbook, actually showing looms and weaving in action, thus giving solidity and reality to verbal and/or written explanation. Films dealing with calligraphy and printing were in the same series.

When the first films were nearing completion, the Ministry of Education was deciding on a clear-cut policy for the use of the film in schools in England and Wales, and towards the end of 1946 a two-part organization was set up to deal with the use and development of visual aids. It comprised the National Committee for Visual Aids in Education, and the Committee for the Preparation and Production of Visual Aids in Education. As a result more teaching films became available which, as I will explain in due course, were eventually to be catalogued and distributed by the new Educational Foundation for Visual Aids.

Chapter IV

THE EDUCATIONAL FILM ABROAD

BEFORE dealing with the contributions of other countries, I will briefly survey the history of efforts to promote production and international exchange in which UNESCO has played a prominent part.

Jean Benoit-Levy, appointed as Director of Films and Visual Information for the United Nations in 1946, wrote:

'The very mission of the cinema is to make men realize that they are brethren. Without the spirit of friendship which embraces all, no unity is possible, and without unity all will be lost. The film of to-day is confronted with a great task; it can help to create lasting values.'[1]

As far back as 1928, the League of Nations established an International Institute of Educational Cinematography in Rome, to encourage the educational and cultural use of films, and to stimulate international exchange. The Institute undertook research into the wider uses of the medium, produced a monthly periodical, *Interciné*, and issued lists of subjects. It also sought to advise other departments of the League on films. In 1934, it concluded a Convention for the *duty-free* exchange of educational films, but, of the film-producing countries, only Italy and Great Britain signed, and the volume of exchange was therefore little increased. Indeed, before 1939, only thirty-four British educational films received certificates under the Convention.

In December 1937, when Italy left the League, the Institute came to an end, though its work was partially continued by the Institute of International Co-operation in Paris. The failure of the Rome Institute was due first, I understand, to the fact that it tended to be an instrument of the Italian Fascist Government rather than of the League, and, secondly, because the production and use of educational films were not sufficiently developed in most countries to provide the basis for either national use or international exchange.

Certain of the bi-lateral cultural agreements concluded in the thirties covered arrangements for film exchange. The provisions of

[1] *Penguin Film Review*, vol. 4, pp. 10–11.

the agreement concluded between Germany and Hungary in 1936 were far-reaching, and provided the former with an effective means of cultural penetration. In order to facilitate the spread of Nazi doctrines, Germany even assisted Hungary to provide projectors in its schools. Generally speaking, however, such bi-lateral agreements did little to foster international exchange, and private agreements between unofficial bodies in various countries were potentially of greater importance. The basis for official exchange during the war years was laid by the scheme worked out in 1939 by Film Centre Limited in London, and the Museum of Modern Art Film Library in New York. Commercial distribution of educational films outside their country of origin was also arranged and is now being developed by such companies as GBI, UFA, and the American concerns, ERPI, and Eastman-Kodak.

Generally speaking, few governments were aware of the need to use films to project their countries abroad in the pre-1939 era, with the possible exception of Germany through the German Railways Information Bureau, which granted extensive filming facilities to companies abroad to produce sequences of the life of the nation. Few other powers, as I have said, realized the necessity to use films to describe not only the landscape and geography of their countries but also their industries, health, educational and other services, and daily life, culture, and characteristics.

International bodies were also slow to realize the part film can play in furthering their aims, and although the Information Office of the League of Nations employed a few films to publicize the work of its various departments, there was certainly no large-scale development. In 1938 the International Labour Office commissioned a memorandum on the use of film in its work from Film Centre Limited. This outlined the various non-theatrical channels which might be used by the I.L.O., and suggested subjects which could be sponsored, but the war prevented these proposals being implemented.

In the same year an International Federation of Film Archives was set up to assist the work of national film libraries. The original members were the Museum of Modern Art Film Library in New York, the Paris Cinématheque Française, the National Film Library, London, and the Berlin Reichsfilmarchiv. The principal object of the Federation was to promote the international exchange of films of historical value to be preserved for future generations, but again the work was disturbed by the outbreak of war.

In 1940 a Conference of Allied Ministers of Education met in

London to investigate the problems of educational reconstruction in the post-war world, and an Audio-Visual Commission was appointed to consider, among other matters, the standardization of projection equipment; it also viewed teaching films with the intention of listing those found to be suitable, and making them available to Allied Education departments. The Conference proposed the setting up of a United Nations educational and cultural organization, and, in November 1946, delegates from forty-three countries attended a Conference in London to discuss the establishment of such a body.

As a result, the United Nations Educational, Scientific, and Cultural Organization was established, with wide terms of reference. Part of the work of UNESCO was to encourage the exchange of *all* types of factual films. It was stated that this new body could give assistance to other functional organizations. War-time exchange of films had also been undertaken by the London Films Division of the United Nations Information Organization (UNIO).

The film department of the newly created UNESCO was faced with two major problems. It was clear that pre-war schemes for the international exchange of films had failed, owing to production of factual subjects in the various countries being undeveloped, and there were consequently no common national achievements on which to build. On the other hand, war-time developments in the production and exchange of such films had been born out of urgent need. It was therefore necessary to conceive the future programme in two parts: first, a short-term plan to provide the maximum supply of completed films and film material for all countries and United Nations Organizations requiring subjects for their work of reconstruction; secondly, a long-term plan reflecting future needs. These included the necessity for making information on all levels as widely available as possible; developing interest in current affairs; providing rapid and vivid training in every type of manual and technical process; widening the scope of classroom education; and planning films to aid the world fight against illiteracy.

The separate film department that had been set up was to provide full information about all factual films available, to encourage each country to make its own contributions, and employ to the fullest extent the services of other countries as available through the organization. The department had also to endeavour to secure international agreement to avoid duplication of subjects, and thereby achieve co-ordination of production in the different countries. Eventually, it was to consider the possibilities of direct production, com-

missioning its films through already established units in various countries.

The concern of UNESCO is defined by its title—the international exchange of cultural and scientific thought, and the building up of international understanding based on real knowledge. At first, the film work of UNESCO was centred in the film section, which formed a unit of the Mass Communications division, comprising films, press, and radio, headed by John Grierson. This section was administered by William Farr, and comprised four information officers, two programme assistants, an executive assistant, and two secretaries. Its work during this early period was experimental. It had 'to strike a working balance between the potential scope of an international organization which had the sky for a limit, and its actual scope, which was defined by its budget'.[1]

At a General Conference of UNESCO at Mexico City in 1947, the work of the film department was reconsidered, and a programme of nine key projects laid down.

The work of the department, now freshly defined, was the organization of a free flow of films, film personnel, and film information across national and other barriers. It was to encourage the use of films in fundamental education projects—for general purposes of international understanding, for popularization of science, in libraries and museums, by governments and mass organizations, and for education in music, art, and literature. It was to assist the reconstruction of the film industries of war-devastated areas, and to further the international standardization of equipment, raw stock, cataloguing methods, and other technical matters.

Certain operational approaches to implement this general programme were then laid down: research and collection of information was to be carried out by field workers, by the United Nations and its specialized agencies, by UNESCO National Commissions, and by film organizations. Research matter provided by the last was to include material obtained from the production organizations, distributive agencies, exhibitors, manufacturers of stock and equipment, laboratories, and from film societies and similar organizations. Other material was to be obtained from the film trade press, the general press, and from educational, scientific, and cultural bodies. In this way, it was envisaged that information covering a wide field would be acquired.

It was further decided that information services, such as cata-

[1] Ernst Borneman, 'Films for International Understanding', *Penguin Film Review*, vol. 7, p. 96.

logues, monographs, bulletins, and mail-answering services should be provided for UNESCO liaison officers in the various countries, UNO and its specialized agencies, UNESCO national commissions, all branches of film industries, lay and trade press, and all educational, scientific and cultural bodies to whom they would be of value.

It was also agreed that UNESCO should be represented at international conferences, and all commissions and festivals. International film shows and film seminars should be arranged, and film scholarships, fellowships, training schemes, grants-in-aid, and the exchange of personnel should be encouraged by all possible means.

As far as the collection and dissemination of information is concerned, it was clear that UNESCO's function should be facilitating an exchange of information between existing organizations, rather than acting as an international film information centre itself. With regard to the stimulation of film activities, UNESCO should first identify the most pressing needs, define ways of meeting them, and then bring them to the attention of the proper national agencies. The UNESCO film department was neither a world film university, research centre, nor world film agency, but an inter-governmental organization dependent for its effectiveness upon the co-operation of the member-states. To paraphrase the 1948 programme—as a mere secretariat lodged in a disused Paris hotel, UNESCO would be powerless; as a world organization of governments and peoples it could exercise an influence upon film production and distribution in direct proportion to the willingness of each member-state to act through its own film committee.

These film committees have been described as the 'grass roots' of UNESCO's film activities. They can be established either as branches of the United Nations Film Board, on which the film department of each country and the special agencies are represented, together with UNESCO's own film section, or as working committees within the growing network of UNESCO National Commissions, already established in Australia, Austria, Brazil, Canada, China, Colombia, Denmark, the Dominican Republic, France, Haiti, Italy, Mexico, the Netherlands, New Zealand, Norway, Peru, the Philippines, Poland, Union of South Africa, United Kingdom, U.S.A. and Venezuela.

Only where national information on the production, distribution, and exhibition of films and other audio-visual aids is made available to UNESCO through such film committees, and through UNESCO to other film committees in other countries, will it be possible to contemplate and plan the international exchange of such information.

These film committees, while having a direct channel for distributing their own current information, will then also be assured of the reception of similar information from the film committees of other countries.

The scope of their activities is not limited to the exchange of information. All major UNESCO projects have been developed with their aid, and among those depending on their assistance is the project to assist the free flow of films, film personnel, and film information, across national boundaries. In accordance with the UNESCO programme for 1948, the film department of UNESCO has interpreted this task as the need for establishing equal access to films without regard to racial, social, or economic restrictions. Research on the problem has been carried out, and studies are continuing on such matters as censorship, copyright, restrictions, customs, monopolies, quotas, tariffs, and union restrictions, all of which constitute obstacles to the free flow of films.

The film department took part, therefore, in the first session of the United Nations Sub-Commission on Freedom of Information and of the Press, held in May 1948, as well as in the World Conference on Freedom of Information held at Geneva in March 1948. The department prepared a questionnaire, tentatively called 'Request for Information', to be sent to the governments of the states invited to the World Conference. It was based on the questionnaire of the Technical Needs Commission, published in September 1947, and asked for information on legislation and regulations affecting the free flow of news by means of films in member-nations as well as in those war-devastated countries which had not then become members.

Several other Conferences have met during the last few years to discuss the same matter, including the International Tele-Communications Union Conference at Atlantic City; Le Congrès International du Filmologie in Paris; the preparatory meeting of the 1947 SFA international conference in Paris, and the first session in March 1947; the meeting of the Educational Film Libraries Association at Columbus, Ohio; the Philadelphia Conference of the U.S.A. National Commission; the Denver Regional Conference of the U.S. National Commission; the U.K. Mass Communications Committee for UNESCO; and the International Film Festivals at Brussels and Locarno. At all these, the UNESCO film section was represented.

UNESCO has strongly supported all international organizations facilitating the free flow of films between nations, and considerable support has been given to such bodies as the World Federation of Scientific Film Associations, the World Federation of Film Tech-

nicians, and the International Federation of Film Archives. The provision of technicians, materials, and equipment to countries in need of such facilities is being negotiated by the promotion of a system of international credits, to be secured against services provided by beneficiary countries to technicians from other countries.

The film department defined fundamental education as being basically a campaign against illiteracy in backward areas. In 1947, however, it became clear that an approach narrowly confined to the removal of illiteracy, without taking into account other elements in audio-visual education that are essential to health and community life, would be inadequate, and the attack on illiteracy became but a part of the general campaign against ignorance, disease, and poverty. The task, therefore, took on a new aspect. Not only had scientific, educational, and cultural films to be brought to undeveloped areas, but the aim had to be brought home to the organizations on whose assistance the fundamental education scheme would ultimately depend.

In cases where films and strips required for fundamental education were not immediately available, UNESCO undertook to initiate and, where necessary, finance their production. A special group of experts on visual education was consulted with regard to the audio-visual aspects of the subjects, and they reviewed the relative value of the different techniques of Mass Communications for this purpose. An important function provides film coverage for UNESCO's pilot projects on fundamental education in China, East Africa, Nyasaland, Tanganyika, and Haiti, with donations both of films and film strips.

In order to further the use of films for international understanding, the film department keeps in constant touch with all production and distribution organizations in the fields of educational, scientific and cultural subjects, and has already advised and helped many of them. For instance, UNESCO collaborated with the Committee for Social Information in Stockholm in planning a series of films on social subjects for the Swedish Government. The Danish Government received advice on the distribution of five films in a series called 'Social Denmark'. The C.O.I., London, asked UNESCO to suggest twenty foreign two-reel films for distribution in the United Kingdom. The 'March of Time' unit arranged the showing of its film on *Basic English* in connection with the UNESCO meeting on problems of language in fundamental education, the screening being followed by a discussion on the problems and potentialities of films in the teaching of languages.

The UNESCO 1948 programme included a proposed series of forty-eight films on the special achievements of a number of nations in the fields of education, science, and culture, to be produced, I understand, through national organizations to an international plan, and distributed internationally. Each country will, in time, be invited to produce films on national achievements of interest and value to all other countries, and each nation producing such films will have the right to distribute the whole series. Basil Wright drafted the programme, and Britain, Poland and Holland were the first to agree to produce subjects. The Danish and French governments have expressed their interest, and, with the approval of the General Conference, this project has had top-ranking place in the programme for films for international understanding since 1949.

UNESCO is also furthering the use of films for popularizing science. A world list of available films is being prepared, to be followed by details of films on agriculture, nutrition, town and country planning, health, medicine, and surgery, and by a study of the use of films and other audio-visual aids in relation to the understanding of the social conditions affecting and affected by the development of science.

UNESCO is promoting the establishment of experimental centres in several countries for the production and distribution of films on the popular presentation of the arts, and subjects on folk art and the traditions of craftsmanship are being encouraged.

The reconstruction of the film industry in war-devastated countries forms an important part of the programme. In September 1947 the Report of the UNESCO Commission on Technical Needs in Mass Communications was published, followed by a second Report on ten war-devastated countries in Europe and the Far East.

The activities of the film department of UNESCO continue to form part of the activities of the Mass Communications division, and the work of the latter is wholly devoted to the implementation of the basic purpose of UNESCO—the building up of international understanding by an international exchange of cultural and scientific thought.

DEVELOPMENT OF THE EDUCATIONAL FILM IN OTHER COUNTRIES

As the following survey will show, film is meeting the different educational needs of peoples all over the world, from the scientist

and artist in the most highly civilized capital to the illiterate peasant in the backward areas of U.S.S.R., South America, Africa, India, etc. The purposes and scope of any scheme for fundamental education, as the enlightenment of backward peoples is termed, were defined in December 1947 at UNESCO's Mexico Conference. Its immediate and specific concern, it was stated, is with those peoples living in less advanced regions, and with illiterate populations in industrialized areas. Its wide aim is to help the peoples of the world to live fuller lives, to have greater understanding of each other, to develop the best elements of their own cultures while learning more of those of their neighbours, and to achieve social and economic progress. Wherever disease and poverty, ignorance and illiteracy are to be found, there the work of fundamental education should begin.

Fundamental education is not limited to the teaching of reading and writing. Though universal literacy is essential, it is not necessarily the *immediate* purpose of education. John Grierson, illustrating this point at the Conference on the Film in Colonial Development, organized by the British Film Institute in January 1948, cited the work of the Mexican Cultural Missions which had been operating under UNESCO's auspices. Fundamental educators were working amongst the Mexican Indian peasantry living in remote villages where poverty, squalor, and disease were rife. They were teaching the Indians to procure proper water supplies, to combat disease, farm their land productively, build houses, and use hygienic methods with regard to food and clothing. So far the teaching of reading and writing had *not* begun; for these, in this particular case, were secondary considerations, and until the standard of living had been improved it was useless to tackle the problem of illiteracy. Education for better living was the primary necessity; lessons in reading and writing and the extension and improvement of schooling formed the second half of the general educational scheme. This point, often not sufficiently realized, should be borne in mind in considering the uses of the film in schemes for fundamental education.

To-day, projects of this kind are being organized in China, Latin America, the Southern States of the U.S.A., Haiti, and British East Africa, to name but a few. Seminars are held, at which the problems of specific areas are debated, and methods devised to bring general education to the ignorant and illiterate. Among the backward peoples themselves interest in their own development is quickening. In Africa educated people are already at work, devoting to the cause of their less advanced countrymen the knowledge they have acquired

in the universities of Europe and America. Centres of education, such as Achimota University on the Gold Coast, are being founded, and all the education forces of the modern world being brought to bear on the development of large areas. It is our concern here to discuss the part film is playing in the advancement of these projects, and to consider ways in which it might be further employed.

As an example of the kind of treatment given to a film on a subject entirely outside the experience of the audience, I have, when dealing with the uses of the educational film in Arabia, described in some detail one of the films I myself made for an Arab audience on the subject of the motive power of ships, cars, and aeroplanes.

THE BRITISH COMMONWEALTH

Australia. In September 1944 the Director-General of Information and the Director-General of Post-War Reconstruction convened a conference representative of all interests concerned in the production and use of documentary and educational films. As a result of the recommendations, the Commonwealth of Australia set up a National Film Board to undertake the production and distribution of films for post-war training, child and adult education, and national publicity. The inaugural meeting of the Board was held in June 1945, and though considerable changes in membership have since occurred the Board's functions remain unaltered.

The Board is the Commonwealth authority for film production, and any film required by a Commonwealth Department is produced through the Board either by the staff of the Film Division or, on contract, by a commercial firm.

Thus the productions of the National Film Board fall into two sections: those made with money made available to the Board for its own films, and those financially sponsored by various government departments and such bodies as the Road Safety Council. While the latter are primarily publicity films designed, perhaps, to encourage the sale of Australian apples overseas or to inform prospective migrants of Australian conditions, the Board has been using its own budget to produce films on national problems, films depicting Australian cultural development, films interpreting the Australian way of life, films for use in classrooms.

The Film Board arranged that subject to the limitations imposed by printing difficulties, one copy of each of its productions should

be given to each State education department and two copies to each State advisory committee. It is intended that private schools should be among those borrowing Film Board productions from the advisory committee in their State. To the end of May 1949, 156 copies of Board films had been issued free to education departments, and 312 to State advisory committees. The National Library was appointed by the Board to act as its central library and non-theatrical distributing agency, and as such has arranged for the distribution of films already mentioned and for the sale of numerous prints of the Board's productions. Quite apart from non-theatrical channels, the Board has had considerable success in obtaining theatrical distribution for several of its films. Though acceptance of a film for theatrical distribution means delaying its release to the non-theatrical field, the Board considers that the disadvantages of this are more than offset at this stage of incomplete development of the non-theatrical cinemas.

Members have always felt that one of the important responsibilities of the Board is the production of classroom instructional films, but for a long time and a variety of reasons, production was delayed. However, a beginning was made in 1949 with a series of six films on social studies for junior primary children. Three deal with the story behind the delivery to a child of a letter, a pint of milk, and a loaf of bread. Each classroom film produced by the Board is to be accompanied by a teacher's guide providing a synopsis of the film and suggestions concerning its use. The Office of Education is responsible for the production of the guides.

As it is felt that imported films can well supply the need in science and in world geography the Board is concentrating on classroom films dealing with Australian subjects.

In planning the programme for 1949–50 the Board approved a long list of subjects in a number of series. The topics listed are more than the Film Division could hope to produce in a year, but they provided a long-range plan in which priority is accorded to certain films in each of several groups. Thus the series portraying interesting Australians will be continued, as will that depicting developments in various cultural activities. Linked with the instructional films already mentioned are a natural history series, emphasizing the marsupial family and wild flowers; a popular science series, with sidelights on important Australian inventions; a series on economic subjects; a social development series; and a group of occupational informational films. Social problems have

SUMMARY—VISUAL AIDS EQUIPMENT OF STATE EDUCATION DEPARTMENTS OF AUSTRALIA

State	*Approx. number of Schools* 1945	*Approx. number of Pupils* 1945	*Annual grant for Visual Aids* (1946–7)	*Projectors in the schools*			*Titles in Departmental Libraries* (*a*)		
				35-*mm. Strip*	16-*mm. Silent*	16-*mm. Sound*	35-*mm. Strip*	16-*mm. Silent*	16-*mm. Sound*
New South Wales	2,550	340,000	£6,000	253	69	180	Not on loan. Ed. Dept. productions (43) given to schools	450	550
Victoria	2,450	217,000	£12,700	600	?	21	Not on loan. Ed. Dept. productions (170) sold to schools at 1*s.* each	120	350
Queensland South Australia	1,520 840	137,000 67,000	£6,500 £3,060 (*b*)	36 30	84 303	30 29	254 1,000 also school libraries	279 500	350 — (*c*)
Western Australia	680 (*d*)	62,000 (*d*)	£5,300 (1st year)	130	22	25	500	52	250
Tasmania	360	31,000	£1,000	?	135	7	Schools have their own libraries	800	60
Totals	8,400	854,000	£34,560	1,049	613	292	Usually purchased by schools	2,201	1,560 (*c*)

(*a*) Schools also make use of other libraries, e.g. Overseas Government, Representatives; Commercial firms.

(*b*) In South Australia there is no vote specifically for Visual Aids, but from Government funds approximately this amount was spent in 1946–7.

(*c*) The South Australian Documentary Film Committee's Sound Film Library of nearly 100 films is available to the schools, but most of these are war-time propaganda films.

(*d*) Western Australia figures are for 1944.

not been overlooked, and a film on juvenile delinquency is now being made.

Canada. There is a steadily increasing service of visual aids to schools of all kinds, in both city and country; and a rapid increase in the purchase of projectors and in the use of film-strips.

The National Film Board, a federal agency, acts as a producer and distributor of educational films and other visual aids. Other departments of the government, such as the Secretary of State Department, responsible for citizenship training (at all age levels, and for both 'old' and 'new' Canadians—the latter recently arrived as immigrants), sponsor the production of valuable educational material widely used in schools.

Canada's school population is a little under 2,000,000. As had been said the number of projectors in schools is increasing, and there are now upwards of 3,700 sound film projectors owned by the provincial departments of education and local school boards. The provinces between them hold an estimated 25,000 films in their libraries, and about 23,000 film-strips.

To-day there are three principal programmes of films designed for classroom use. First is geography, beginning with the Canadian Arctic—the 'Arctic Notebook' series, of about nine or ten films. Second, natural history; the indigenous birds and beasts of Canada, shown in film which is obtained by a group of naturalists and wild-life officers working in collaboration with the National Film Board. The series 'Birds of Canada' is a continuing part of this programme. Third, Canadian history; studies of Canada's constitutional and economic history. Films in this group (the most recent) include *Family Tree* and *Under One Roof*, on the subject of Canadian confederation; others will deal with *Age of the Beaver* and with early history in Upper and Lower Canada prior to 1867. In addition, classroom films have been produced on music (*Story of a Violin* and the three-part *Children's Concert*) and the sciences (*Time and Terrain* and *The Impossible Map*).

Film-strips have followed a similar course. National Film Board film-strip production, at first taken up almost entirely with sponsored subjects commissioned by other departments of government, is turning more to classroom needs. A notable new series of strips is 'Canada—Our Land', together with 'Canada—Our History', commissioned by the Secretary of State Department (citizenship branch) for use in schools.

In Canada, British and U.S. material have been widely used, for

several years in fact before the National Film Board and other Canadian producers came into being.

India. The part film can play in the education of less advanced peoples was recognized more than twenty years ago in the Report of the Indian Cinematograph Committee (1927–8), which referred to the medium as: 'An instrument of untold value for harmonizing ideals, ideas, customs, and practice all over the country. It can be made into a nation-building force. The standards of life in other countries, conditions of labour, sanitary methods, civic life of the people, etc., if properly shown on the screen, will go a great way to remove vast ignorance, and tend to improve the condition of people in this country.' This Report was enlightened in outlook, and anticipated much of the thought current in Britain to-day. It had the courage to claim the film as an ally, and to propound a constructive educational cinema policy in a country where the dangers of failure are great, and where the vast differences of race, religion, caste, and political belief make any innovation a difficult, and sometimes a dangerous, matter.

Its proposals, however, were not carried out. For, if such ideas were in advance of opinion generally held in Great Britain in the twenties, it is understandable that men in authority felt the time was not ripe in India, a country which, only a hundred years before, had been firmly tethered to centuries-old tradition.

To-day, the recommendations made by the Committee are in process of being put into effect. General education is a provincial matter, but visual education is to be run by the Central Government in order to ensure co-ordination. The Indian National Government, supported in this matter by social workers, educationalists, film makers, and trade interests, has fully recognized the value of film as an instrument in the education of the vast mass of illiterates which form 85 per cent of the country's population. But progress is, of necessity, slow. The very conditions prevailing in India enforce caution in the use of any new medium. At present the number of Indian children whom films reach is negligible. There are approximately 36,000,000 children between the ages of six and eleven, and 86,264,000 between the ages of eleven and seventeen.

In 1927 there were 309 cinemas throughout India on the distribution lists. (For this purpose 'India' includes both India and the Muslim State of Pakistan.) In 1940, the number had risen to 996; by 1947, there were approximately 2,000 cinemas. Before 1939, Indian films were seldom under 14,000 to 15,000 feet in length, the audience

considering that a programme lasting less than two and half to three hours was hardly value for their fourpenny admission fee. The films tended to be of a stereotyped kind, similar to the average Indian feature film of to-day—composed of seven or eight song and dance sequences, a very sentimental story, and featuring numerous stars.

With the war it became compulsory for all cinemas to show 2,000 feet of 'approved stock', in the form of an Indian newsreel, or short interest films, not necessarily from indigenous sources. Government shorts were dubbed in Hindustani, Bengali, Urdu, Tamil, Telegu, and English. The effect of war-time production has been noticeable, and already films with strong social significance are being made. *Hamrahi* (Brethren), made in 1945 by the New Theatre, was a modern social film dealing with the conflict between capital and labour, and emphasizing the theme that a place in the sun does not necessarily depend upon a capacity to make money, and that dignity and knowledge are not the exclusive possessions of the rich. Unremarkable technically, *Hamrahi* was significant for its sincerity and its simple message designed to give new heart to thousands of Indian labourers in the industrial centres.

Another recent production, *Dharti ke Lal* (Children of the Earth), produced by the Indian People's Theatre Association, also took for its subject the India of to-day. In a talk with the Secretary of IPTA, an Indian film-maker, Nazim Rahim, discussed the aims which lay behind the making of the picture. The Association is fully aware that the themes of the average Indian feature made to-day are 'pretty purposeless', and make little effort to bring home to Indians the plight of the peasantry, who form the greater part of the population. Even the Bengal famine had not really brought home to those outside Bengal the conditions actually prevailing in the Province, which had been responsible, in part, for its outbreak. The Bengali situation was one that repeated itself, in varying ways, throughout the country. The Association, therefore, was determined to write the story of the famine so that its significance should be fully realized by Indians everywhere. During the making of the film individuals and organizations which had nothing to do with IPTA offered their services, and the Kisan Sabha, the Peasants' Party in India, mobilized thousands of its members for the hunger march and farming scenes. The All India Students' Federation lent support, and the result can truly be described as a people's film. Although it projected hunger, defeat, and death, *Dharti ke Lal* contained constructive teaching, particularly in its implication that

Indian farmers may find their salvation in co-operative farming. The solution suggested in the film aroused interest in the Soviet Union, and Soviet Film Distributors, with offices in India, asked for a copy to be sent to Moscow.

The Central Government has recently set up a Committee to investigate the use of films in primary, secondary, university, and adult education. It will also organize the Government's Central Film Library, which is to have local branch officers, and will advise on the buying of films from abroad. There is also to be a department for Audio-Visual Education. I understand that an experiment in visual education has been carried out in Bombay, where the Government has appointed an Advisory Board to develop production. The Board will also tender advice on requirements for adult education. The Bombay Government has appointed its Educational Adviser as Chairman, and the Director of Publicity of Bombay is on the Board. There has been established a Technical Advisory Board for Visual Education.

An illustration of the increasing interest being taken in the development of educational films, both theatrical and non-theatrical, has been the inauguration, by the Dewan of Mysore, of the Scientific Film Society of Bangalore. Set up in February 1948, the Society is the first of its kind in India. It proposes to produce and exhibit films on scientific subjects 'in a way that can be easily understood by the general public'. Membership is open to all.

New Zealand. Visual education has made an extremely rapid advance in New Zealand, and the use of films as a form of instruction at post-primary and university level is now very common.

The National Film Library is run under the direction of the Ministry of Education. It was organized in 1940–1, but prior to this date films were on loan under general library conditions from the New Zealand National Film Unit, Miramar, Wellington. Since 1941 the National Film Library Service has been greatly expanded to cover not only schools and universities, but also a variety of adult organizations. There are approximately 1,350 schools in the Dominion. This figure includes only those with a roll number of thirty children or more, and embraces primary and post-primary schools. The annual report of the Education Department (1949) states that over 600 schools (which is approximately 44 per cent) are formally registered with the National Film Library Service. The Education Department subsidizes any school which wishes to purchase a film projector or film-strip machine. Films produced in

New Zealand especially for schools include *Clean Teeth*, *The First Two Years at School*, *Safe Cycling*, *Right Hand Rule*, and *Keep Left*. Among those produced by the National Government Film Studios both for adult and classroom use are *Maori Village*, *Railway Worker*, *Children and Music*, *Potter's Wheel*, *Coal from Westland*, *This is the Weather Office*, and *Power from the River*.

Pakistan. Although Pakistan has 37,746 primary, middle, and high schools with 3,145, 824 pupils, not one was using film in 1948. However, the Education Division of the Central Government does plan to use films in schools, starting with the setting up of a Central Library, which will be stocked with about thirty films a year on standard subjects imported from abroad. Later, it is hoped to produce educational subjects in Pakistan to meet special demands.

South Africa.[1] South Africa has long been aware of the immense potentiality of the 16-mm. film as a dynamic aid to enlightened teaching.

In 1936 the Union Education Department started a small film library which has steadily grown, and to-day in all probability it stands on the threshold of the greatest expansion in its history.

The Film Services branch at present incorporates a film library with a section for film methodology, and one for the production of films.

The library has an approximate circulation of 100,000 films per annum among its 1,647 members, comprising schools, colleges, universities, churches, hospitals, State departments, and various cultural societies. It has 20,970 reels of 16-mm. film on ninety different subjects as well as 5,034 35-mm. film-strips. Many of the films are in colour. Some are silent and others have been provided with commentaries in English and Afrikaans. The catalogue includes films on art, arts and crafts, music, religion, languages, history, geography, astronomy, chemistry, biology, agriculture and animal husbandry, geology, psychology, vocational guidance, and social science. The library also circulates recorded music and manuals for the guidance of teachers.

Attached to the library is a well-equipped cinema where films are shown to subject experts before going into circulation. There are also facilities for rewinding, checking, repairing, receiving, and distributing films, and for servicing projectors. Towards the latter half

[1] By S. L. van Wyk, Head of Utilization Branch, Film Services, South African Education Department.

of 1946, Film Services acquired its own production branch for making both monochrome and colour films and also for processing.

A few examples of films, all in colour, which have already been produced, are: *The South African Police*, *The Clothing Industry of South Africa*, *Snakes and their Venom*, *Prehistoric Art in South Africa*, *South African Artists*, *Plastic Surgery*, *Citrus-Growing in South Africa*.

EUROPE

Austria. In Austria, 16-mm. is restricted to education. There are no 16-mm. cinemas at all, nor is there any distribution organization for 16-mm. entertainment films. The educational film in Austria is taken care of by the Central Institute for Visual Aids and Educational Films. Both films and equipment are rented at low costs for non-commercial exhibition. The organization is largely financed from contributions paid by pupils, who have to pay 1.10 *schilling* a year, amounting to 750,000 *schilling*. To this is added a Central Institute grant of 10,000 *schilling*.

The Institute produced twelve silent films in 1947 and it is said that there were forty more in preparation or production. Films in the Central Library include 400 silent and 50 sound. Approximately 50,000 showings are given annually in schools and universities to a total audience of something over 2,000,000.[1]

Belgium. In the thirties, educational film development became the concern of the government, and proposals for State production of documentary and teaching films formed an important part of a debate in February 1936 on the budget of the Ministry of Public Instruction. During this debate M. van der Nerte brought to the attention of the Senate the success of Britain's G.P.O. Film Unit at the Brussels Festival of 1935, and asked the Minister of Public Instruction whether his Ministry was considering the use of film as a medium of public instruction. The Department, stated the Minister, was already considering the whole problem, and fully recognized its importance. 'We plan', he said, 'to build up a national service of educational films. At the same time, we hope to provide material assistance for Belgian producers. . . .'

Meanwhile, Henri Storck, Belgium's finest documentalist, was

[1] Extracted from UNESCO's *Report of the Commission on Technical Needs in Press, Film, and Radio.*

making instructional films, notable amongst which were productions on the nation's cotton industry, and furniture and tapestry manufacture.

Czechoslovakia. In the thirties great progress was made in Czechoslovakia, at the Masaryk Institute in Prague, an organization somewhat similar to the UFA cultural and scientific department. Under its auspices, Ceskosolovensky Filmovy Tydenik made educational films, a good example being *On the Hills and in the Valleys*, about Czechoslovak agriculture, directed by Carel Plicka.

The following films are but a few of the great number of newly completed shorts: *On the Green Lawn*, a film about the history of football; *Spring in Slovacko*, concerned with Moravian folklore themes; and *Songs of the Heart*, a film about children's school choirs, and the Czech folk songs. A notable development is the use of puppets and cartoons in the production *Leonora*, a story about a lazy, dirty girl against whom all the domestic utensils which she has treated badly rise up and stage a revolution. Quite a new approach to the teaching of domestic science!

Denmark. For some years the Danish Government has taken an active interest in the development of educational films and national cinematography, and all film matters come under the jurisdiction of the Ministry of Justice. The Film Raadet (Film Board) which advises the Ministry has a committee of nine members appointed by the Minister of Justice, Ministry of Education, the Teachers' Association, the Folk High School Association, the Workers' Educational Association, cinema owners, authors, and actors. The terms of reference of the Committee are:

'To watch the development of film-making abroad and to help towards giving cinematographic exhibitions in the country as versatile a character, and as high an artistic and cultural quality as possible. . . . .'

By law, a proportion of cinema programmes should be reserved for the showing of educational or foreign films of cultural and educational value. These are distributed through the Staten Film Central (State Film Library) which can call on the assistance of the Film Raadet. In that way between fifteen and twenty governmentally sponsored documentary films are shown annually, without any charge by or to cinemas. Danish scientific films are of high quality, and examples were shown at the International Scientific Film Association's Congress in London in October 1948, including

films on the life cycle of the toad, and the cabbage butterfly.[1]

France. During the thirties there was considerable evidence of film being used as a teaching instrument on the Continent. In France, the 'Trois Minutes' series, made by Atlantic Films, was presenting such formidable subjects as *Alsace-Lorraine* and *The Moslem Problem* in novel diagrammatic form, using silhouette maps, radiating lines, circles, and shaded sections. These were by no means the first diagrams on the screen, but they were perhaps the most polished that had been seen up to that time, and they proved that, intelligently produced, the animated diagram is capable of clarifying complicated subjects so that they will be easily remembered and, moreover, presenting them in a surprisingly short space of time. Marcel Hubsch, who made *The Moslem Problem*, indicated the spreading of Moslem influence, radiating from Mecca, and penetrating through Palestine and Eastern Europe, and receding when in contact with Christianity, with masterly film draughtsmanship.

Work had originally started on this series in 1921, but it was not until ten years later that the company produced their first important film. Between 1931 and 1936 twenty-two films were made in many languages, including Japanese. Among these of particular note were *Automatic Telephone*, *Blood Transfusion*, *The Chinese-Japanese Question*, *War Debts*, *A Voyage to the Moon*, *The Parachute*, *Alsace-Lorraine*, and *The Islamic Problem*. All controversial subjects were treated impartially. Each film was made under the supervision of an expert, and cost the equivalent of about £1,250. Although composed entirely of diagrams, it was neither monotonous nor obscure, for the artistic supervisor, Étienne Lallier, created designs which were so attractive to look at, and were so compellingly and artistically animated, that they were widely popular. Commentaries were brief and crystal clear, instructing lucidly and pleasurably.

It was in the thirties, too, that another great pioneer of the educational film, Jean Bénoit-Levy, was active. This is the man who wrote that 'film should be an educating force not limited by boundaries of nation or language'. In 1934 his *Le Chant de la Mine* appeared, and the lovely *Fleurs de Vigne*. Such films were providing a pattern for the film in education and, had the pattern developed and the films been produced as the results of a definite policy, the acceptance of classroom films would have been hastened enormously.

Bénoit-Levy was not alone, for the genius of Jean Painlevé was also finding expression on the screen. Precise and scientific, he was, in

[1] *Report on Danish Film Industry*, UNESCO.

many respects, the counterpart of Britain's Percy Smith. Son of a French premier, he devoted much of his life, and, I believe, his fortune, to the development of the scientific documentary film, and subsidized the Institut de Cinématographie Scientifique. Apparently he received no financial encouragement from the government to develop his experimental work, and so he combined the roles of idealist and scientist, refusing to romanticize his productions, or to respect the demands of the box office. He was fascinated by aquatic life, and, in 1934, made the beautiful *L'Hippocampe* (Sea Horse), in which scientific fact and poetic loveliness together created the ideal teaching film.

It was at this time that underwater filming was facilitated by the invention of an apparatus, best likened to a gas mask, which could be used by cameramen instead of cumbersome diving equipment. It was called *scaphandre le prieur*, and led to the formation of a club by Painlevé the purpose of which was to train its members to use the device for submarine filming, rescue work—and even for aquatic sports.

Nevertheless, Painlevé declared that the most satisfactory underwater results could be obtained only in an aquarium, for the sea presents too many difficulties—tides, currents, shifting sands, inadequate light—and even on a day of brilliant sunshine, clear pictures could rarely be taken more than about three feet below the surface.

Apart from production technicalities, however, it is important to note that the children of those years—adults to-day with children of their own—were made film-conscious at school, and had the advantage of seeing artistic educational films.

From 1921 small groups of French teachers produced films and organized an exchange system among themselves, thus removing the distribution problem. A solid nucleus of teachers therefore existed from the early twenties, understanding the uses of the film in the classroom, and able to state definitely the subjects suitable for teaching purposes. Their films were specialized, and produced for specific purposes. The lessons were not adapted to the films, but the films to the lessons, illustrating and completing them. In Paris, an association of these amateur film-producers set up a small library. For reasons of cost, many of the groups used 9·5 mm. film, as, for example, Co-operative Interscolaire du Jura, operating in the Eastern departments; M. Boyau's group in the Gironde; and the group organized by M. Fresnay at St Paul de Vence.

These early efforts constituted a considerable achievement, and

a number of the original film-makers are to-day among the chief producers of educational films in France. M. Jean Brerault was originally a teacher in a Paris boys' school, where he found that many of his pupils were unfamiliar with the sea, and needed illustrated demonstrations. For example, the boys were unable to grasp thoroughly his lessons on tides, the action of waves, erosion, the formation of river mouths, and estuaries. He therefore made a film about the sea, with a borrowed camera. It met with such success that he continued producing, and, in 1929, with the assistance of Jean Bénoit-Levy, made *Idea of a Map*. This film showed how, to anyone rising in a balloon, the countryside gradually assumes a simplified flat appearance, thus demonstrating how the conventional markings of geographical maps are justified. This was perhaps the first rational attempt at an educational film in France. It vividly illustrated the lesson, providing original methods of presentation and demonstration in a way that was unique.

Brerault made many more successful films, including *How the Steam Engine Works*; *Archimedes' Principle*; *Atmospheric Pressure*; *How the Suction Pump Works*; *The Internal Combustion Engine*; *Levers*; *Coasts of France* (4 films); *Rivers of France* (4 films); *Mountains of France* (3 films); *The Canals*; *A Commercial Port*.

Another notable educational film-maker was Marc Cantagrel, Professor at the Paris Commercial High School. With two colleagues, M. Ferrand, Professor at the Commercial High School at Marseilles, and Ferdinand Meyer, Professor at the École des Hautes Études Commerciales, Paris, he investigated the possibilities of classroom films, and finding that some of the subjects already made did not suit his purpose, being insufficiently specialized, he began to make his own.

Cantagrel had real cinema sense, and has become a distinguished film-maker. His productions include *The Gas Works*, *Malthouse and Brewery*, and *Mechanical Tile Production*.

These films had a masterly accuracy, and greatly impressed certain industrial groups, who asked him to produce for them. He made for the Westinghouse Company *Continuous Compressed Air Brake*, consisting entirely of animated diagrams, and recognized as a film masterpiece. Produced in 1935, it has been shown in France, Belgium, Roumania, Switzerland, Jugoslavia, Bulgaria, Poland, and Spain, as an essential element in the teaching of young railwaymen and factory workers. Since 1944, the French State Railways have ordered ten more copies to replace those worn out. An accompanying pamphlet, handed to pupils after the film, is distributed at the

rate of 2,000 copies a month. Shown also to British railway officials, the film was immediately acclaimed as an essential part of instruction.

Cantegrel has produced a number of films for the French railways, a series of educational films of an elementary kind for Larousse, the educational publishers, and a number of scientific films. His more recent work includes a film illustrating a lesson on the metallurgy of iron, and several subjects made for the French rubber industry. For the Ministry of National Education he has made the mathematical films *Regular Polygons*, *Families of Straight Lines*, and *Families of Parabolas*, and, more recently, *Elementary Geometric Lines*. His work includes elementary, secondary, technical and professional training films. He is assisted by L. Motard, who is responsible for the animated drawings and diagrams.

Further Outstanding French Educational Films:

Literature:	*Comedy before Molière*, made by Jean Tedesco; an attempt to teach literature by film.
Training:	A series made by Marcel Ichac for the technical training of French aluminium workers: *Aluminium Welding*; *Aluminium Brazing*; *Aluminium in Rural Electrification*.
Medical and Surgical:	A series by Jean Benoit-Levy, including: *Bronchoscopy*—by Professors Bernard and Soulse; *Operation of Cancer of the Breast*—Professor Gosset; *Biopsy*—by Professors Roussy and Leroux, the latter speaking the commentary. Professor Leroux produces every year a film in the small laboratory he has fitted up at the Faculty of Medicine in Paris.
Science:	Highly specialized subjects such as the micro-film recordings made by Dr Comandon, head of the film department of the Pasteur Institute, which comprise studies of the living cell, its growth, and cellular division; and the work of Bernard Lyot, astronomer, at the observatory of Pic du Midi. Films on engineering, aerodynamics, and ballistics, made by the stroboscopic system of the Seguin Brothers, supplemented by General Libessart's method, which makes it possible to take pictures in the millionth, the hundred millionth, and billionth of a second.

Two commissions set up by the Ministry of National Education, and presided over by Henri Wallon, handle problems connected with school films. There is also a Technical Commission dealing with projection apparatus for schools, and a Pedagogical Commission which supervises production.

Film libraries exist in Paris and the larger provincial centres. Paris uses the Seine Film Library, which offers four main services: 1. Loan of films and slides. 2. Teaching service (special sessions in schools, pedagogical experiments relating to the use of films, and enquiry into results). 3. Educational film centres. 4. Technical services for maintaining apparatus.

In the Department of the Seine, the number of projectors in schools is about 150, for 35-mm., 16-mm., 9·5-mm., and 8-mm. films. The Seine Library has three portable 16-mm. units and two 35-mm., available for showing films in schools which do not possess their own. At the headquarters in the Rue Robert Étienne there is also a projection hall.

The National Federation for the Educational Film is a very active organization, whose activities in 1947 included:

1. A number of informative sessions for teaching staffs in provincial towns—at Amiens, Lyons, Grenoble, Quimper, Albi, and Alsace. Some twenty sessions were arranged in Paris, with programmes consisting of recent French and foreign films, either classroom subjects or documentaries.

2. The purchase and distribution of films. In 1947, 970 films were lent, as against 430 in 1946.

3. Publication of a journal, *Films et Documents*, acting as an important and efficient means of maintaining relations between teachers and producers.

Germany. Germany made considerable strides during the thirties, there being a great demand for educational films both before and during the Nazi régime. According to an estimate by the Reichfilmkammer in 1936, there were 200 companies making documentary and educational films in Germany, UFA being the foremost organization. UFA films became world-famous. The company's documentary department, directed by Dr Nicholas Kaufmann, was responsible for the production of about sixty films a year, covering mathematics, physics, zoology, chemistry, and astronomy, as well as new technical inventions and sport. There was also a special series on hygiene and medicine. For films of specific Nazi educational value, Dr Goebbels instituted the Reichs Propaganda Leitung, which pro-

duced up to three films a year, one of the most important being *I for you and you for me*, detailing the work of German women.

Of the smaller concerns, Nethus-Films made a miscellaneous output, including a number on bird life under the direction of Professor Walter Hege, and a series on animals directed by Emil Schumemann. UFA created the Institute of Film Economy at Neubabelsberg, the first exhibition of its kind, the purpose being to display by means of apparatus, models, and charts, everything of interest in the production and distribution of films. There were demonstrations of the making of micro-films of bacteria and animal life, of underwater films, of technical magic, such as back projection, scale models filmed to appear normal size, and so on, as well as lectures on production.

The Institute of Film Economy gave the following statistics for UFA's total production during 1934–6:

	1934–5	1935–6
Features	21	26
UFA production in France	14	16
Miscellaneous shorts	17	30
Kultur films	20	40
Educational	5	11
International	19	32

It was estimated that in 1937, while the 31,000 British schools possessed under 1,000 projectors, Germany's 55,000 schools owned nearly 50,000 machines. In 1938 400 new films were required for school and college use in Germany, and under the auspices of the State Educational Film Institute which controlled production, the demand was met.

Holland. At Haarlem in the thirties, J. F. Mol was making short films on unicellular forms of life which were shown throughout the world. They covered, with a minimum of footage, such subjects as flowers actually bursting into blossom and spiders feeding. Mol began his scientific career after meeting Professor Siedentopf from Gena, the first man to succeed in combining microscope and camera. Mol attributes his success to this meeting, and also to the fact that he lived in one of Holland's smallest villages, in the depth of the country, which enabled him to devote himself to a study of plant life. He equipped his studio with time-lapse photographic apparatus, so that he could set his cameras to take single pictures automatically at regular intervals. Later he installed recording gear for making 16-mm. educational films with sound. Notable among

his many films are: *From Bulb to Flower*; *The World of Crystallization*; *Malaria Germ* (made for the Dutch Red Cross); *World of Nature*; *Our Blood*; *Lobster Nurseries;* and *Life in a Drop of Water.*

Hungary. Although known in Hungary since 1917, educational cinematography is now being reorganized. Formerly, everything to do with educational films was handled by the Ministry of Education. This charge now comes upon the Hungarian Film Office which, however, is in close liaison with the Ministry. The executive body is the Educational Film Institute.

Between 1935 and 1944 the Institute produced about 300 films, practically all silent. Only a few, however, have been produced since the end of the war. All production is on 35-mm. which is reduced to 16-mm. About 300 films are held in the Institute, and about 370 schools have silent projectors, maintained by the Institute, which also trains teachers in use and handling. There are twenty mobile units run by an organization known as Mafirt, which is tied to the Communist Party.

Italy. As a whole, the educational cinema in Italy is in a transitional stage. At the moment there are only about 100 films in the official library. In the schools there are 624 16-mm. projectors, mostly silent.

The Centro Cinematografico Cattolico plan to establish 22,000 16-mm. theatres in Italy before 1954. This will be accomplished in collaboration with OMI Nistri, a manufacturer of equipment.

The U.S.S.R. Education in Soviet Russia presents one of the greatest problems with which any modern State has had to deal. A vast and often illiterate population, composed of many diverse races, created the need for a medium through which a measure of education could be provided on a large scale, and film was chosen for the purpose.

The Russian film industry from the outset has been primarily planned for wide education, its avowed purpose being to provide 'a cultural and educational recreation', controlled and maintained by the State. Stalin said: 'The cinema in the hands of the Soviet Power represents a great force', and upon that principle the pre-war work of educational film production was based. Because of this there is, in the Soviet Union, a conception of cinema-going very different from that prevalent elsewhere.

'Going to the cinema is regarded more as a cultural experience

than an evening's entertainment. The audience stares at the screen as if attending an important lecture. Its attention seldom wanders.'[1]

'The primary conception behind the whole plan', said Roger Manvell, 'is adult education in the broad principles of the Revolution, its history, its processes, its personalities, and its planning.' These ideas were given even greater emphasis in the more limited sphere of educational film production.

Before 1939 there were already two units, called factories, in Moscow, devoted to educational and technical films, and during the period of the first two Five Year Plans well-equipped scientific film studios were established in Moscow, Kiev, Leningrad, and Novosibirsk. By 1940 their combined annual output had risen to over 150 films. From the outset the Soviet cinema was used extensively to popularize science and mechanics, and many Russian scientific film producers won international recognition long before 1939. Among them were Alexander Zguridi, whose notable films include *Depths of the Sea*, presenting submarine plants and animals, including unique scenes of a jellyfish taking food (normally they eat only in darkness), and *Force of Life*, showing the struggle for existence of forest animals during the changing seasons of the year.

Andrei Vinnitsky, the biologist, made *Amazon Ant* and *Ammophila Wasp*, both of which were shown at the 1936 Paris Exhibition. Vinnitsky was the first man to film the complete spinning of a web by a spider, and a silkworm winding its cocoon, and during the last war he made a remarkable film called *Sunny Tribe*, illustrating the complicated organization of life among *wild* bees, revealing that their methods are governed by instinct, and not by reason.

A pioneer in micro-cinematography as applied to biological films was Professor V. Lebedev, who, by 1939, had supervised the making of many instructional films, including *Development of the Embryo* and *Our Invisible Friends*, the latter, distributed commercially, show- the activities of various bacteria and micro-organisms, both harmless and harmful, and demonstrating such processes as the fermentation which transforms grape juice into wine, and the formation of yeast.

Ultra-rapid and slow-motion photography, cartoons, and diagrams, were all extensively used in training and educational films in Russia during the thirties.

Geographical and allied subjects were also developed by experts, and prominent amongst such producers was V. Shneiderov, who

[1] *Sight and Sound*, No. 21, p. 11, quoted by Roger Manvell in *Film*, 1944.

specialized in ethnographical material and was the first Soviet director to evolve an 'adventure-scientific' style, illustrated in *Golden Lake* and *Valley of the Alamases*.

The Moscow Power Institute made many of its own films, which were edited by senior lecturers and produced by a special department of the Institute. These included subjects on the theory and manufacture of induction motors and transformers. A particularly interesting example dealt with surge phenomena in transformers, and showed black and white diagrams of surges travelling along a transmission line and striking a transformer with the resulting reflections and oscillations. The use of surge arresters and Petersen coils and the design and construction of Soviet non-resonating transformers were shown. There was also a film on vector algebra and calculus, making clear by black and white drawings of vectors and planes the meaning of potential fields, divergences, vortices, and vector potential. (*The Engineer*, 14 November 1941.)

During the 1939–45 war great technical advances were made in subjects for service training. For instance, long-distance lens filming and the recording of ultra-rapid movement made possible *Ricochet Firing*, which showed the flight of a shell, its impact on the target, the rebound, and explosion. Progress was made in the researches of leading scientists, such as *Physiology and Pathology of the Higher Nervous System*, recording Pavlov's researches; *Plastic Surgery of the Face*, a demonstration of Professor Rauer's work; and *Therapeutic Surgery to Injured Periphery Nerves*, a remarkable exposition of the war-time work of Academician Burdenko. Progress was also made in X-ray filming during the war, one of the most notable pictures being *X-ray Diagnosis of Firearm Wounds*.

It is interesting to note here that from about 1943 the proportion of Soviet films on non-military subjects began to increase. An astronomical series was completed by Michael Kaufmann, including *Solar*, *Lunar Eclipses*, and *The Earth Spins*, and work was resumed on studies of historic relics and architecture, as, for example, *Churches of Kolomenskoe* and *Ostankino Palace*, in colour. A fascinating experiment was made by Zhelyabuzhsky in his colour film *Paintings of Repin*. Repin's greatest canvases were photographed from various distances, and in sections, and a striking analysis of the development of his technique was built up. In the spring of 1947, by government decree, the Film Committee of the U.S.S.R. became the Film Ministry, and the importance of the immediate expansion of the industry, stated in the current Five Year Plan, was reemphasized.

To-day a considerable part of film production under the Plan is based on Stalin's election speech of February 1946, in which he re-emphasized the vital importance of science. The production and distribution of scientific films is accordingly being greatly extended and, moreover, a number of feature films are being devoted to the lives and works of scientists.

The 1947 schedule provided for 186 scientific films, of which fifty-six (six full-length) were for the general public, while 130 were made for specialized audiences. In August 1946 the Committee ordered various measures to be taken to improve the circulation and publicity of scientific films, and the number of prints of the monthly series, 'Science and Technique' (some issues of which are in colour), was doubled. Carefully arranged and balanced collections of science films toured the country, and scientific film lectures and festivals were held with increasing frequency. The later scientific films included Andrei Vinnitsky's *Land of Miracles*, in which two explorers shrank to the size of ants. This experiment in 'scientific fantasy', as it has been called, showed the explorers becoming involved in the lives of various insects, and surviving because they used their minds, whereas the insects acted instinctively. The film was remarkable for the exceptional micro-photography and the number of technical devices introduced.

In the sphere of geographical film-making, Shneiderov has produced several shorts in the series 'Our Country Journeys in the U.S.S.R.', including the colour films *Batumi* and *Sukhumi*.

A full-length geographical film dealt with the explorer Mikluha Maklai. Described as a 'scientific feature', the picture, under the direction of A. Razumny, reconstructed Maklai's travels in New Guinea and other parts of the world. It was a frank dramatization of a scientific theme, and in the direct line of development of a trend beginning in the later thirties, when special attention began to be paid to film scripts which had literary as well as scientific value. The aim since has been, wherever possible, to impart scientific knowledge and theory not in abstract form but in their relation to human life and endeavour.

A great proportion of scientific films made at the present time deals with aspects of the Five Year Plan. The fifty-six popular scientific films on the 1947 schedule included the full-length picture *Stalin's Urals*, telling of the role of the Urals in the Plan. Ten shorts are in the series 'Tales of the Great Plan', seven are in the series 'What Our Scientists are Working On', and five are in the series 'Nature and Life'. All are more or less directly concerned with the

Plan, as are films in many other series on current production schedules. The 130 technical instruction films on the 1947 schedule covered a wide range of industrial and agricultural problems, such as the study of sources of energy—coal, oil, nuclear fission—and a monthly series, 'The Agricultural Lectures'.

Big film libraries are being built up in the principal centres, and the best methods of distributing educational films over vast areas are being investigated.

In *Leisure and Culture*, Eisenstein pointed out how the motion picture has become 'a prime cultural necessity to the Soviet citizen'. The best films, he said, are distributed in thousands of copies, and shown not only in rural and urban cinemas, but in clubs, to collective farmers in the remote countryside, and to the armed forces. Itinerant cinemas take films to the most distant parts of the country, to the Siberian forests, the Caucasus, and villages in Turkmenia, Tajikstan, and Kazakhstan.

A great effort has been made to increase distribution facilities. Figures of projectors are difficult to obtain and almost impossible to verify, but in his book *Film* Roger Manvell gives the following statistics obtained from official sources, and from the Soviet Press. In 1937 there were 3,000 sound cinemas and 36,000 silent projectors to reach 160 million people. In Moscow (population 3½ million) there were between fifty and sixty cinemas with an average weekly attendance of 350,000. Writing in 1940, Ivor Montagu gives more favourable figures for the equipment position:

'The third Five-Year Plan involves the disappearance of all silent screens and the increase of sound projection units more than six times, from 9,000 in 1937 to 60,000 in 1940 (exclusive of those in schools and other places not open to the general public). The network in the countryside will increase 1,108 per cent: 50,000 standard and 40,000 substandard sound projectors, with 35,000 electrical generating apparatus for portable work, will be produced during the third Five-Year Plan, or to express it another way, accommodation for spectators (calculated on a basis of annual occupation of seats)—which rose as follows: 1928, 310 million; 1936, 710 million; 1939, 950 million—will increase to 2,700 million (45 per cent instead of as now 30 per cent in the countryside) by 1942.' (Documentary News Letter, 1.9. p. 11.)

In an article on 'Realism—the Basis of Soviet Art', film-maker Semyon Burov stated: 'The Soviet Government expects an artist to do one thing only—to tell the truth, to give a true description of contemporary life and historic events.' Thus all Soviet films, both

theatrical and non-theatrical, possess in common one main feature; the presentation of realism.

Contemporary life offers a wide range of subjects, and the tremendous changes which have occurred since the October Revolution have provided Soviet film-makers with many themes. Some films are concerned with the thoughts and feelings of the citizen; others with the builders of the new Soviet State; others, again, deal with such Soviet activities as collectivization of agriculture, and the creation of new Russian industries.

The aim of U.S.S.R. film-makers to interpret contemporary life is illustrated by such films as Eisenstein's *General Line*, with its theme of the struggle for the collectivization of agriculture, and Gerassimov's *The New Teacher* and *The Great Citizen*, describing the struggle against the old system. *Peasants*, *Soil Upturned*, and *Counterplan* deal with changes in the social structure brought about by the Revolution. *Counterplan* describes how workers put forward, on their own initiative, a more ambitious production plan than that devised by the Government, and fulfilled it, increasing their output by improvement in production methods.

The history, ideology, and personalities of the Revolution are made familiar to the Russian population on the screen. Here, too, realism is the common feature, as, for example, in historical films such as *October Revolution*, and in Donskoi's biographical trilogy on Gorki. In many of the films dealing with revolutionary history or ideology, a synthesis between the plot concerning individuals and the narrative of epic events has been achieved. This is apparent in Pudovkin's *Mother*, in which the development of the mother's character in the film is integrated with the events of the Revolution (as is the development of Ivan's in *The End of St Petersburg*). Made with careful reconstruction of the periods concerned such films as *Suvorov*, the biographical-historical subject describing the defeat of the French Imperial armies in Italy and the Alps by the Russian General Suvorov, and *Admiral Nakhimov*, Pudovkin's reconstruction of the life of the man who occupies in the Russian Navy a position similar to that held by Suvorov in the Army, are planned as dramatic educational films. Modern biographical subjects are also produced, ranging from reconstructions of the lives of such political figures as Lenin and Stalin, to the biography of the horticulturist Michurin, made in colour by the Ukranian producer Alexander Dovzhenko in 1948.

All outstanding Russian historical films like *Suvorov*, *Peter the Great*, *Ivan the Terrible* and *Saadadzke*, have a common characteris-

tic. In them the people honour their history, seeing in its greatest representatives the embodiment of their own aspirations and the depicting of the great events of their country's past.

Whilst everything is kept strictly to period, and no modernization or stylization is tolerated, and while architecture, costumes, and all other details in a given period are accurately presented, there is also a strict insistence on the correct interpretation of the customs, manners, and the general mood of the epoch. It is here that Russian historical pictures differ from the average commercial 'costume' picture of the West, which, though pictorially authentic, often fails to create the *atmosphere* of the period. 'On principle,' writes Elena Kuznetsova, of the Russian Film Ministry, 'Soviet artists avoid the appearance of slickness and artificiality in their films.' This dictum is proved by numerous productions, including *Peter the Great*, where the sets, ranging from a shipwright's workshop to formal state apartments, and the actors, from Peter himself to those in the most insignificant roles, are remarkably convincing. The same point is illustrated by Eisenstein's *Ivan the Terrible*, in which the vast vaults of the Tsar's palace, the mystery and intrigue, the boyars creeping through low arches, and Ivan himself, create an atmosphere truly mediaeval.

It is this creation of atmosphere which invests Russian historical films, despite the presence of ideological bias, with educational value. If a period film purports to reconstruct real characters and events the portrayal must be realistic, or the film is worthless as historical reconstruction.

Russian films with scientific backgrounds recently produced, or at present in production, include Jozintev's biography of the Crimean War surgeon Pirgov; *At Our Factory*, telling the story of present-day innovators in science and scientific technique; *Diamonds*, showing how geologists are exploring the national mineral wealth for industrial purposes; and a popular science film magazine, *Science and Technics*, which appears monthly, before the main picture of the programme. The series is produced by Voentekhfilm, which is in direct contact with such scientific institutions in Moscow as the Academy of Sciences, the Agricultural Academy, the large laboratories, and the Bureau of Rationalization Proposals. These establishments send to the producers details of their latest discoveries, inventions, and innovations, and those found suitable are incorporated into the magazine. Each of the series runs from ten to twelve minutes, and is composed of four subjects. For example, an issue may include an account of work in a factory, in a laboratory, on a

biological subject, and details of a recent technical discovery. Such varied contents as the latest achievements in the silk, steel, shipbuilding, and plastics industries, and the work of physicists, chemists, and zoologists have already appeared.

The films are directed by Konstantin Kogtev. Assisted by a competent group of technicians, he has had considerable success, recent editions being devoted to an account of the work of Stalin prize-winners. They include the experiments of Academician Kapitza in low temperatures, and the liquefaction of air; Professor Rosenberg's process of drying blood serum; and Vavilov's work in luminescent substances.

The series serves to popularize up-to-date scientific knowledge, and approximates to some of the films shown at the Scientific Films Association Congresses. But whereas the majority of scientific films made in the West are designed mainly for specialized audiences, the Russians simplify specialist knowledge in order to make it acceptable to the cinema public.

It is obvious that practically the whole network of Soviet cinemas has been turned into 'classrooms', for the Soviet film which has no educational value is the exception. Despite their serious purpose, nearly all these films have a wide appeal, and are skilfully made so as to be comprehensible to the many diverse races constituting the population.

. . . . .

It can be seen that, in many cases during the years preceding the 1939 war, the educational film was being widely developed in Europe, and that definite policies were being formed. Most of the early films reached high technical standards which have hardly been bettered to-day, save, perhaps, by the introduction of colour. Nearly all such activities were curtailed by the coming of war, but, as I pointed out earlier, this stoppage was largely offset by developments arising out of war-time requirements, which stimulated both production and distribution throughout the world.

ASIA

Arabia. I had an interesting experience during the 1939–45 war making a number of simple films for showing to Arabian tribes in remote desert areas, who were becoming increasingly bewildered by the hordes of soldiers, tanks, and aeroplanes for ever passing through and over their villages. Many of these people had never previously seen motor vehicles, and some thought aeroplanes were real birds.

Few if any had seen the sea. The main object of the films was to widen their experience, explain to them something about the war which was encircling them, and try to show that the civilized world was not entirely composed of madmen, dressed alike, who were constantly killing each other. Judged from civilized standards, these people would be classified as backward, but in some ways I rather think they know a thing or two more than we do, particularly about the wisdom of simple living. The films designed for them are of special interest here, first because the fact of being able to show them in isolated desert regions illustrates the limitless possibilities of distribution of a medium which can reach everyone; secondly because they have proved that pictorial narration is without equal —the films being fully understood by these people; thirdly, because in my opinion, these same films would be most suitable for showing in our own schools, both to backward and forward children.

In planning them I had to bear two points in mind; that the people had rarely if ever seen the objects which were to be explained, and that they had never seen any films. Briefly, the series was designed to show how motor vehicles move, why ships float, and how aeroplanes fly. Each was described by a commentary in Arabic (there was a Persian version, too), and lasted about eleven minutes. The following list of visuals of the first film, *Why it Moves*, briefly described, together with the accompanying commentary, is self-explanatory.

WHY IT MOVES

Visuals	*Commentary*
A native village. General activity of people and carts drawn by camels, oxen, and horses.	We all know that to make anything move, there has got to be some sort of power . . .
Hand lifts up a stone jar.	. . . either to *lift* it . . .
Someone pushing a handcart. Someone else pulling a handcart.	. . . or to *pull* it, or to *push* it.
Camera follows a cart being drawn by a camel.	And for many thousands of years, and until a few years ago, whenever we saw anything moving we saw the power that was causing it to move.
Continuation of camel-drawn cart.	It might be a camel pulling a cart . . .
Bullocks drawing plough.	. . . or bullocks pulling a plough.

Visuals	*Commentary*
Car travelling across a bare expanse. Convoy of lorries moving fast in opposite direction.	But nowadays, we see all sorts of strange and sometimes very large and heavy vehicles moving about, without, apparently, anything causing them to move.
Mobile film van moves slowly into picture towards camera, and stops.	Take, for example, a van like the one which has come very many miles in a short time, specially to bring you these pictures. How has it come here, and what is the power which moves it?
Dark-skinned hand picks up a date from a heap.	I'm going to try and explain it to you, first, by a very simple example with these dates.
Face of a dark-skinned boy. He puts date in his mouth, chews, and then blows out the stone. Profile shot.	After you've eaten a date, and kept the stone in your mouth, if you blow hard, *so*, the stone will shoot out ahead of you, like that.
Action repeated. Full-face shot.	That's because you blow the air into your cheeks hard, and since the air wants to escape, it blows the stone out of your mouth.
Simple diagram of boy's profile. Action repeated in slow-motion—air carrying date stone out of mouth.	We'll repeat it once more with this drawing of the same boy, so that you can see how the air is blown out, carrying the date stone with it.
Close-up rough table top. Fingers pick up a small heap of gunpowder on a piece of paper, and a bullet.	Now take something on the same principle, but much more powerful. You will know what gunpowder is. Well, we'll take a small quantity like this, and a bullet.
Old musket standing against a wall. Hand picks it up.	And here's something else you know—a musket.
Close-up. Gunpowder poured in and rammed down.	Now when the gunpowder is put into the musket—and rammed down . . .
Close-up bullet inserted.	. . . and then the bullet is put in . . .
Musket held in firing position. Finger traces path of bullet along the barrel.	. . . you know that when you pull the trigger, it makes the gunpowder explode, and that drives the bullet along the barrel, and out of the end—just as the force of air made the date stone shoot out.

Visuals	*Commentary*
Diagram. Sectional view of musket *interior*. Trigger pulled. Explosion occurs. Bullet seen travelling along barrel and out, just as the date stone was blown out of a mouth.	This drawing of a musket will explain it even more clearly by showing what goes on *inside*. First, the gunpowder is rammed in. Then the bullet. Now the trigger is pulled, causing an explosion which drives the bullet out, very powerfully.
The front of the motor van. Hand raises bonnet, revealing the engine.	Well, as I was saying, it is very much the same sort of power that makes the engine inside this van go, driving it along.
Petrol poured from can into large jar to show its resemblance to water.	Only, instead of using gunpowder, we use a liquid which looks like water, and is called Petrol.
The van seen from the side. Petrol poured from the jar into the tank.	Let me show you how it works in the engine. First, we have to pour some Petrol into the van at the back. It then travels along a tube to the engine in the front.
Diagram of the van in same position as previous shot. Petrol seen entering tank and flowing forward to engine. Arrows point to the cylinders, which are black. Diagram close-up. One cylinder.	Now here is a section of that engine brought very near to enable us to see how it works. It is really like the barrel of the musket—and this black thing is like a very large bullet.
Diagram. Explosion, and cylinder moves down, and back into original position. The action is repeated, slowly, at first, and then with increasing speed, until it is moving up and down regularly. } Explosions audible.	Well, the Petrol is fired by a small piece of machinery which causes a tiny flame. It explodes with a bang, and blows this large black bullet downwards. But this bullet, unlike the one in the musket, is not allowed to go *right outside* the barrel. Instead, it is fastened by an iron rod to a wheel, so that every time the bullet is blown downwards it pushes the iron rod downwards, too. This turns the wheel, which again pushes the bullet back.
Actual sectional working model of a car engine, and interlocking cog-wheels.	This one wheel is fastened to other cog-wheels, and causes them to turn round . . .
Old wooden cogs driving water-drawing well rope.	. . . just like the wheels which draw water from wells, and which some of you may have seen.

Visuals		*Commentary*
Interlocking metal cogs in motion. Sectional working model of engine. The diagram of the moving cylinder. The actual van engine running. Bonnet placed down. The van moving away.	Sounds of engine firing throughout.	Of course, the faster the engine turns, the faster do the cog-wheels go round. . . . Listen to all these explosions when the engine is revolving very fast. Thus, the wheel in the engine turns the cog-wheels, and they turn the wheels of the van, and carry it along. That's all it is. So simple, in one way, and yet it has taken mankind thousands of years to discover it.
Convoy of vehicles crossing desert.		The great advantage, of course, of this form of power over that of animals is, first, that it doesn't get tired as, say, a camel does.
Closer shot of large lorries passing.		Again, the engines can be made very, very powerful—the engines of these vans are as strong as about fifty camels . . . . . . and they can be made infinitely stronger, too.

It was not expected, of course, that immediately after seeing that film the audience would know all about the internal combustion engine. It was intended merely that the film should serve as a starting point, and discussions followed the showings, enlarging generally upon the advantages of this extraordinary invention which enabled vehicles to move without being drawn, and to carry large loads.

The film describing aeroplanes was called *Mechanical Vultures*, and here is a description of its contents.

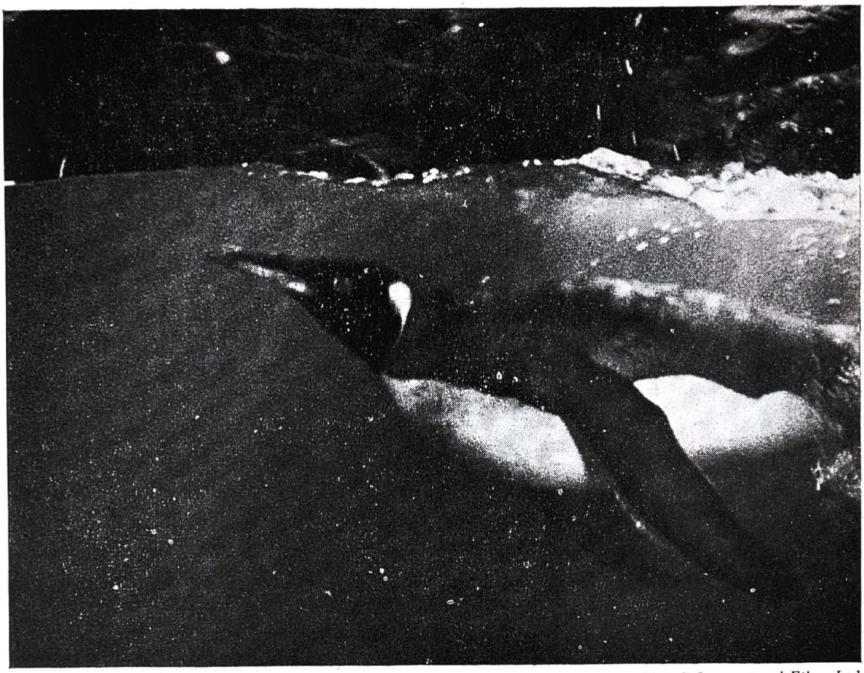
Visuals	*Commentary*
An aeroplane in flight.	Have you often wondered what makes an aeroplane keep up in the sky, and move along?
Birds in flight.	Birds fly by moving their wings.
Aeroplane, nearer camera. Emphasis on its wings.	The wings of aeroplanes don't move at all.

Visual	*Commentary*
A kite lying on the ground.	We can explain this by beginning with this kite.
We notice the string attached to it.	It is lying on the ground waiting for some power to make it rise and fly.
Boy enters, picks up string, runs, and flies the kite.	Well, here's the power—this boy, who picks up the string fixed to the kite and runs.
Reverse angle. Kite rising, boy in foreground.	The kite is rising because the boy is pulling it against the wind.
Diagram. Aeroplane on right. Vast numbers of small figures pull cord fixed to it. It rises as they move away.	Now if thousands of boys could pull an aeroplane in the same way, it would rise too.
Aeroplane in slow flight.	But a lot more power is needed to make it not only rise higher and higher, but travel along, and carry heavy weights.
Diagram-model. Bird centre. Wings moving regularly.	Now here's how a bird flies. You see its wings going up and down, in the wind.
Wings move from bird's sides, cross each other, and become fixed to its beak, propellor fashion, and revolve rapidly.	Imagine that the wings of the bird are taken off and put like this in front of it, and made to turn round very quickly—they would carry the bird along by driving against the wind.
Mix:	
C.U. Propellor of a plane turning in front of camera.	And that's what the propellor of an aeroplane does.
An aero engine fills the screen. Camera pans up to propellor turning.	The propellor is driven by a very powerful petrol engine—more powerful than a thousand camels.
Large aeroplane taking off, slowly, after a long run.	An aeroplane is very heavy and so a lot of force is needed to make it rise from the ground, but it's the same method, on a much greater scale, as the boy pulling the kite into the air.

Visual	*Commentary*
Plane in flight near camera.	As long as the engine makes the propellor turn round, the aeroplane will remain in the air and travel along.
Plane in flight near camera.	And that is how men are able to fly.
Large planes loading up.	Some aeroplanes are so big they carry many men, and even horses and heavy vehicles.
Comparison of men and the aeroplane.	You can tell how big this aeroplane is by the size of the men beside it.
Shot to emphasize wing span. It mixes to sketch of vulture with wings outstretched.	Its wings are sixty times longer than the wings of a vulture.
Final shot of propellor turning, and plane taking off.	And the power which lifts this great aeroplane into the air is petrol, the explosive which forces the propellor to turn round and round and drive against the wind.

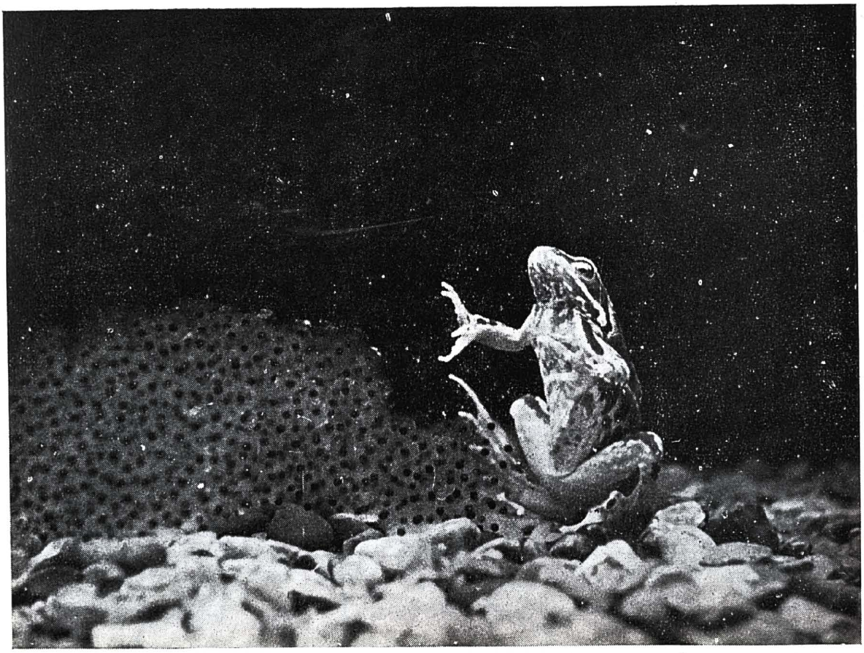
One of the most ingenious in the series was called *Floating Men*, made a year or so later, to explain how men can float down from aeroplanes on parachutes without being hurt. Apparently by this time newsreels from the belligerent nations were reaching the desert people. They had seen spectacular pictures of hundreds of men floating down to earth and were naturally puzzled by it all. This film illustrated the principle of the parachute.

The film featured a little Eastern boy called Kalil, who acted as demonstrator. First, to show that it all depends on the speed at which a thing falls whether it will break or not, Kalil dropped a lump of sandstone which, being heavy, fell quickly and broke into fragments. Secondly, he showed that if anything of a certain weight is *small* it falls much more quickly than a thing of the *same weight* which is large, because the wind catches it. To illustrate this he held two sheets of paper of the same size. He crumpled one piece into a ball and dropped it. It fell quickly. He then dropped the other piece, a flat sheet, and it fluttered down more slowly. Kalil then drank some coffee out of a little cup, held it up, let it fall, and it smashed to bits. But, explained the commentator, if that cup had been attached to a large piece of paper it would have come down very gently and would not have broken. To prove this, Kalil fetched a large paper parachute with several strings attached to its edge. As he



British Instructional Films Ltd

Studies in Animal Motion *1922. A scene from an early nature film showing a penguin swimming under water. Camera work by the late George Pocknall.*

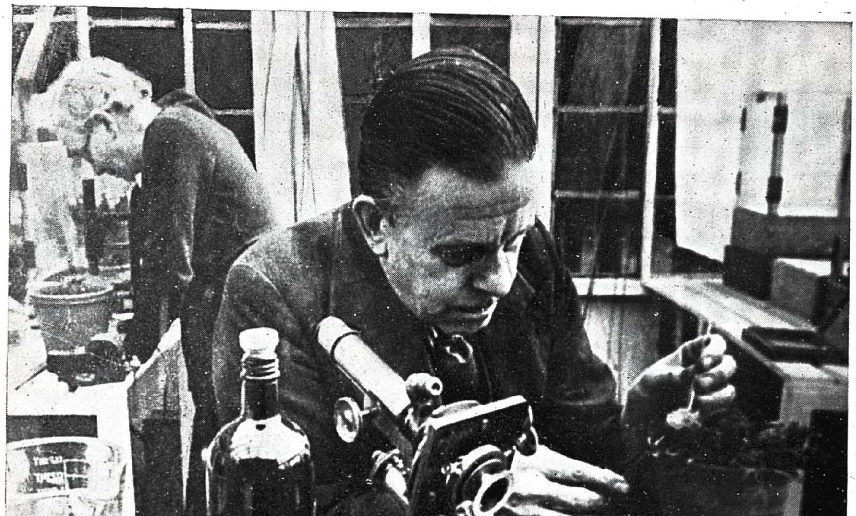


G-B Instructional Ltd

The Frog, *1934, in the famous 'Secrets of Nature' series. Produced by H. R. Hewer. Camera work by the late Percy Smith. For biological classes,* 15 *and over.*

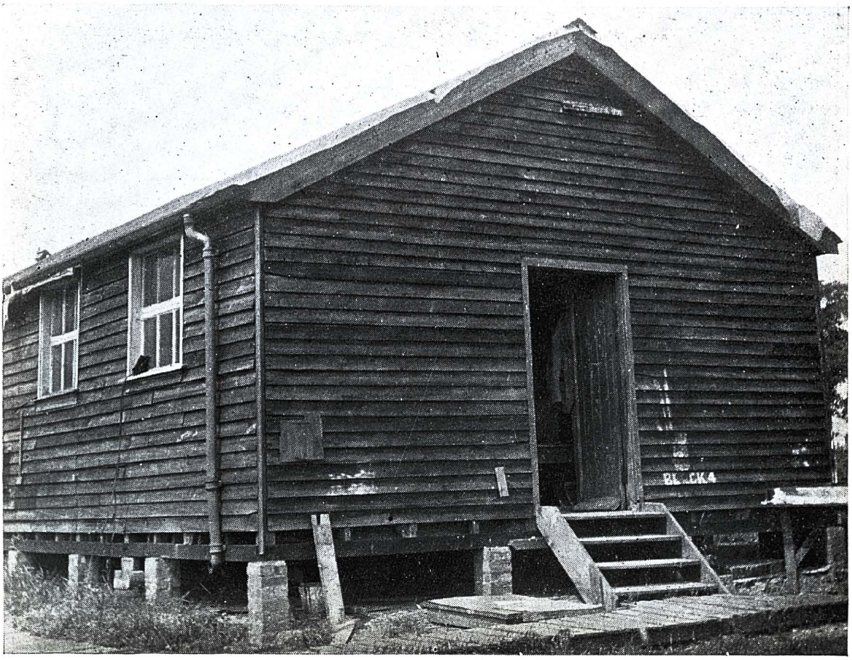
G-B Instructional Ltd

H. Bruce Woolfe, Professor Julian Huxley, and Mary Field with some of their Film Awards at the Consortium, Brussels, 1935. Professor Huxley was one of the Advisers working with G.B.I.



Science Films Ltd

The late F. Percy Smith, one of the greatest makers of biological and nature films.

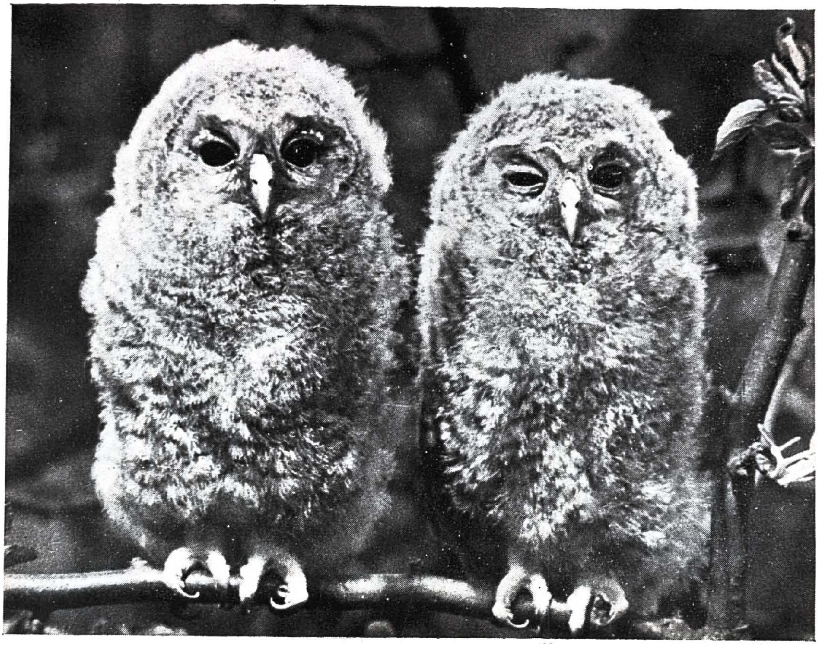


British Instructional Films Ltd

The army hut in Elstree in which the famous 'Secrets of Nature' series originated, 1919–24.

British Instructional Films Ltd

Oliver G. Pike, famous naturalist-cinematographer, 1926–1929, in a hide-out, with his camera equipped with telephoto lens.



G-B Instructional Ltd

Tawny Owl, *1939, nature film photographed by Oliver Pike and produced by Mary Field. For natural history classes, 9 and over.*

G-B Instructional Ltd

Blackheaded Gull, *1935, nature film photographed by Oliver Pike and produced by Mary Field. For natural history classes, 9 and over.*

ran towards the camera, the parachute billowed out in the wind. He fixed another coffee cup to the point at which all the strings met, and then began climbing up a high cliff. Higher and higher he went until his tiny figure was silhouetted against the sky on the top. Then he threw the parachute into the air, and it floated very slowly down and down, the cup swinging on the end. Finally it touched the ground as lightly as a feather and we saw the cup was unbroken.

Following that, parachute troops were seen inside an aeroplane, and actually dropping, their parachutes opening and carrying them gently to earth.

Whether or not these several subjects can be regarded as the most suitable from an educational viewpoint for showing to people far removed from the civilized world, they do serve as examples of how film can present in simple fashion subjects which are really very difficult to describe or illustrate by any other means.

However, all, or nearly all, the films which have been and are being produced for the enlightenment of backward peoples are of governmental origin, there being no independent organization, as far as I know, with either the means or the machinery to supply educational films to remote parts. Consequently, one is justified in assuming that such films contain a certain amount of propaganda for this or that form of government, over and above 'educational values'. All too quickly can primitive peoples become infected by the germs spread by civilization in campaigns which claim to have their welfare at heart. The purpose here is merely to describe the wide use of teaching films, and not to suspect any ulterior motives behind them; but the picture would be incomplete if no hint were given as to the governmental origin of nearly all such films for the so-called backward peoples of the world. If the ultimate result of such showings is to make these simple folk believe that The State (wherever it may be) is the only god they must obey, then such films will have done far more harm than good.

Burma. A governmental film organization, the Stage and Film Section of the Ministry of Information, which was established before the war and worked with the British authorities during the war, was re-started in January 1948 with production and mobile projection equipment purchased from the Army.

The mobile units, of which there are sixteen, reach between 200,000 and 300,000 people a month. In the last six months of 1948, 953 screenings were given. These are increasing each month over their equivalent of the year before.

China. Other Eastern countries have realized the educational value of film. 'There is no question', said Dr T. K. Wellington Koo, at a private conference held in 1945,[1] 'that the film in the near future will form an important channel for public instruction as well as for public amusement.' In recognition of this, the Chinese National Government allotted an important place to the cinema in its reconstruction programme. A joint decree of the Social Affairs Office and the Ministry of Education stated the cinema to be the most effective means of communication with the general public. In China, as in India, this public is mainly composed of ignorant peasantry, illiterate, poverty-stricken, and riddled with superstition.

As early as the thirties, with the occupation of Manchuria by Japan in 1931, the film had been used in China as a propaganda instrument, militant against aggression, and showing the efforts being made to rebuild the remnants of old China into a new nation. Two outstanding early films were *The Fisherman's Song* and *The Road to Life*, both vigorous protests against the spirit of aggression and oppression. By 1933 the Chinese Government had set up three studios—the Central Studio, the Educational Film Studio, and the China Film Studio, the last becoming the China Motion Picture Corporation.

Prior to the outbreak of war in 1937 there were 275 cinemas in China, mostly in the coastal cities. With the withdrawal of the Chinese forces to the West, the producing industry also went westward, and a certain amount of production was carried on. In Free China, in 1945, there were some 112 cinemas, and, apart from these, mobile cinema units of the Political Department, under the Military Affairs Commission, were at work. Ten in number, they visited villages near the front, showing films to soldiers and farmers. One unit made a journey of 3,000 miles, from Chungking to Inner Mongolia, travelling by truck, camel, mule, and on foot, and showing in seven months educational films to audiences totalling some 1,500,000 people.

The end of the war saw a great expansion, directed by the Government, both in production and distribution. An ambitious production programme, consisting largely of educational films, was planned, each film being predominantly visual (with a *minimum* of dialogue), for the language difficulty is as great in China as in India.

Most of the films will ultimately be shown in Chinese cinemas, numbering in 1948 about 800, with seating capacities ranging from

[1] Sponsored by the author.

300 to 2,500. To ensure a wide distribution, the Chinese Government organized a scheme to make sub-standard projectors available throughout the country, and itself sponsored the installations. A 500,000-dollar order was placed in 1947 with a Shanghai company for recording equipment, cameras, laboratory plant, and sound projectors. This vast undertaking was inaugurated to promote national unity of thought, and to assist economic progress.

Malaya. There are about 400,000 pupils to be reached in the Federation. The Education Department uses the Public Relations' mobile units, but as yet only six schools have their own equipment. The greatest need at the moment is for a good supply of cheap 16-mm. projectors.

Arrangements have been made to form a Film Society in Malaya, to enable members to see the best English, Indian, and Chinese productions; to stimulate public interest in the art of film production and film appreciation; to encourage the study of films as an instrument of educational and social progress; to promote interest in film production in Malaya; and to provide opportunities for comparison of film production methods in various countries. The project has been greeted with enthusiasm, a small committee has been set up, and it is hoped to make a start in Kuala Lumpur.

Singapore. In Singapore, educational films are mainly controlled by the Government Public Relations Department. Its library contains some 160 titles, some of which were given by the United States Information Service when it suspended its activities in Singapore. Although handicapped by lack of equipment (none of Singapore's 282 schools with 91,973 pupils is properly equipped for showing films), good progress has been made by means of mobile units to bring information and instruction to the very doors of the mixed population. Free shows are given in the open air, in schools, churches, convents, welfare institutions, and in some of the remote villages by cinema vans. Chinese, Malays, Indians and others attend in considerable numbers. The language employed is usually English, but an interpreter accompanies the vans when necessary. Among films shown, notable successes were some of the short health cartoons produced by Walt Disney, *Burma Victory*, *It Began on the Clyde*, numerous British, Australian, and Indian newsreels, and some road safety films.

Children's matinées are held in one or two of the main public

cinemas on Saturday mornings, but it has been reported the programmes are not very suited to the purpose.

AFRICA

The important part which film is playing as an instrument of education in British dependencies in Africa, and its future development, was emphasized by delegates, both European and African, to a Conference on the Film in Colonial Development held in London in 1948. The work of the Colonial Film Unit in making films for illiterates in Africa was described by George Pearson, a member of the Unit. The aim, he said, was to 'elevate the social life by broadening the minds of millions of natives, at present illiterate and isolated from world contact'.

The Unit was inaugurated in 1939 by W. M. Sellers, its Production Executive, who had already experimented with productions made in Africa. The results encouraged him to devote his energies to promoting the use of film in raising the standards of health, agriculture, industry, and education among the African peoples.

During the years of its existence the Unit has made over 200 films; some seventy 16-mm. copies, and twelve 35-mm. copies of each are distributed amongst forty Colonies.

Travelling cinema vans show the films to the African people, an interpreter being selected from each audience to give a running commentary on the programme. The cinema van is naturally an object of great interest, and its coming is eagerly awaited. Interest has been described as 'amazing', and in Nigeria the average attendance at a film show has been estimated at some 2,000. There was a record attendance of 15,000—at Ijbude, in the Southern Provinces.

Some estimate of the magnitude of the task before the Unit can be made when it is realized that out of a Nigerian population of 20 millions some 80 per cent are illiterate, and, as yet, only a few cinema vans are in operation. These difficulties, together with the great distance to be covered over rough country, considerably limit activities, and showings are proportionately few, in some areas only three a year.

But the plan is steadily expanding. During the first years of its existence the Unit was engaged in explaining the war to its audiences, but subsequently films to encourage the development of better health, better crops, better living, better marketing, and better co-operation, have increased.

From the first the Unit has been fully aware that the best and

most lasting results could only be obtained by the making of films featuring *native characters, and on native soil.* Naturally the war retarded the project, but one important accomplishment was the inauguration of the Raw Stock Scheme in 1941. By this, 16-mm. apparatus and film stock are provided free to Europeans in the Colonies who possess some amateur skill in photography. They film events of local interest and send their work back to the Colonial Film Unit in London for processing, editing, and advice, and subjects considered useable are returned for exhibition whenever possible. During the last eight years 110,000 feet of film have been sent out in this way, of which 62,000 feet have proved worthy of being shown. The scheme continues to operate with increasing success.

In 1945–6, the first overseas unit was sent to the Gold Coast. It was followed, during the next year, by two further units, one going to Nigeria, the other to Kenya and Uganda. In 1948, there were four units operating overseas, one in Nigeria, one in Gambia and Sierra Leone, one in Kenya and Uganda, and one in Tanganyika and Zanzibar.

Among the films produced by them are *Weaving in Togoland*, *Fight Tuberculosis*, *Towards True Democracy*, and *Good Business*; subjects such as *Better Housing* and *Good Farming* are being sent back for showing in London. The London branch of the unit has also been filming many important home items having interest and educative value for the Africans. Colonial officials and others interested in the work of the unit have visited the London headquarters, and further contact is maintained through the quarterly, *The Colonial Cinema*, a thousand copies of each issue being printed and distributed amongst the areas served by the unit, 'as an instructive medium of cinema information'.

Bearing in mind the requirements of the illiterate audiences for whom their films are primarily intended at the moment, the Unit has evolved certain fundamental rules to guide production. First, 'to keep rigidly to those principles of education based on the laws of all human mental progress'; in other words, to attempt to connect knowledge already possessed and future knowledge, by arousing 'the imagination that functions between past apprehension and present comprehension'. Secondly, the Unit plans films that lie within the comprehension of its audiences, which means jettisoning, for the time being, certain filmic techniques that would puzzle, or lie outside the experience of, the natives. For example, dissolves, montages, and camera trick work might, said Mr Pearson in his lecture, suggest to an audience unfamiliar with such effects 'that

something had gone wrong with the machinery'. Filming must be as simple as possible, and modern production technique introduced very gradually as the people become familiar with films. The simplest visual approach has, therefore, been employed from the start. Later, following research now being undertaken into audience reaction, the Unit intends to apply a more creative form of technique.

Simultaneously, African music is being introduced under the supervision of the African musician, Fela Sowande.

'The most exciting mission I have come across—an historical development of the film', is how John Grierson, then Controller of the Central Office of Information's Films Division, and Supervisor of the Colonial Film Unit, described the departure, in January 1949, of ten technicians for East Africa. These men formed a film unit equipped to teach Africans to make their own cultural films, which is a development of the production of subjects featuring African people. The technicians were chosen for their special aptitude in sociology, anthropology, and psychology, and they lived among the natives to teach them film-making. The subjects forming the programme were suggested by the Government, to be finalized by the Africans themselves. The scheme receives a grant of £20,000 a year under the Colonial Development and Welfare Act.

The technicians form four sub-units, three operating on 16-mm. and one on 35-mm. The headquarters are at Nairobi, where 16-mm. processing is carried out, and the units operate from Uganda, Kenya, Tanganyika, and, later, will operate also from Zanzibar.

The Secretary of State for the Colonies, outlining the part film is to play in the general process of educating Colonials in local government, stated: 'The Colonial Office is attaching a great deal of importance to community or mass education which encourages the initiative of Africans.'

The ultimate aim of the Colonial Film Unit is clearly stated: 'Films for Africans, with Africans, by Africans.' Eventually, said Mr Pearson, 'I want to see the story of African folklore, of African fable, of African human emotion'. The Unit is faced with a great undertaking; its aim is to develop through the medium of the screen a new pride in country, in tradition, in the African race, and, finally, the creation of an African cinema.

At the Colonial Film Conference, Miss Baeta from the Gold Coast expressed the African point of view, which coincided, to a large degree, with the aims of the Unit. If, in making these films, 'the company gets Africans together to help in making up and dramatizing the story, I think it would be a great help because they

have the background; they know exactly how to put things to their own people to make them understand'.

Miss Baeta also stressed the need for films showing the British way of life to Africans, confirming that often a distorted view of English life is obtained from commercially released feature films. In his reply, Mr Sellers said that the Unit intended to do all in their power to give Africans a true picture of English life, and cited the subject, *Mr English at Home*, one of their first productions, as an example. This film shows the life of a carpenter and his wife and three children, and gives a good idea of an average working-class family. Another subject with the same object is *An English Village School*. More are planned.

The Unit is including in its film curriculum technical and specialized training. For example, the groundnuts scheme required the services of thousands of Africans to drive lorries, tractors, and bulldozers, and to act as maintenance men. Time did not permit long apprenticeship schemes, but, thanks to experience gained in training men by film in the recent war, the medium was successfully employed to train Africans for such jobs in surprisingly short periods.

The Research Service of the Colonial Unit deserves mention. It began work in 1942, with a survey of existing educational films, seeking to find out which were suitable for Colonial distribution. From this survey, a number of recommendations were made. Aid has been sought from the Colonial Social Science Research Council, and the formation of a research team to operate in the territory where the need is greatest has been discussed.

THE AMERICAS

Cuba. Schools, as yet, have not begun using visual aids on any significant scale. There is a feeling, however, that the educational film should be developed and difficulties overcome, perhaps by the setting up of an audio-visual education organization.

Dominican Republic. In the Dominican Republic the educational film comes in for considerable attention. This service actually started in 1946, and regular screenings are arranged for all secondary schools as well as the university. Adult educational organizations can also obtain screenings on demand. Much emphasis is laid on the subjects of physical education and sports. In 1948, 325 showings a month were given. These reached 120,000 people, which corresponds to

an annual audience of approximately 1,500,000. It is intended to treble this figure. All films are loaned free from the Service Co-operative, whose catalogue has 440 titles.

Ecuador. Films for education are in an embryonic stage and there is no production or any activity on the part of the authorities to develop the medium systematically.

However, there has recently been apparent a growing interest in educational films, and it is anticipated that their use will in future be properly co-ordinated, as it is realized that they would be particularly valuable in reaching illiterates, of whom there is a large percentage in the country.

Honduras. There is no 16-mm. educational production here, but the Ministry of Public Education organizes 16-mm. shows in some schools with the help of the United States Embassy, which possesses the only library, containing about 300 titles. This government, also, is seeking a solution of the financial difficulties so that they may organize proper service for schools, although another drawback is the fact that only about a third of the schools are supplied with electricity.

Mexico. No government department has yet developed the use of films in education systematically, but the Ministries of Health, Culture, and Education are using them incidentally. There are also two private firms which are trying to organize the field on a commercial basis. There is considerable interest being shown in the development of visual aids regardless of the fact that 35-mm. syndicates violently oppose any use of the smaller gauge.

Peru. The Government, through the Secion Central de Ciné, which has only recently been established, is taking great interest in the educational and informational film. There is, as yet, no home production, all films being imported. In 1947 about 400 showings were given in the capital and another 350 in the provinces from a library with only ninety-five titles.

The United States. In 1936 there were approximately 500 16-mm. sound projectors in use. To-day, there are more than 50,000, and over 200,000 film-strip projectors. Nevertheless, as there are more than 27,000,000 students in over 900,000 schoolrooms, 50,000 pro-

jectors falls very short of the declared aim to install one in every classroom.

As elsewhere, the rapid development of teaching films in recent years is attributed very largely to the extensive use of training films during the war.

It is of special interest to note that there is no national authority to control the use of films in schools, for these come directly under the local boards of education, of which there are 111,000. The extent to which films are used, and the amount of money made available for buying them, rests with the local boards.

Most teachers consider that films should be developed as an integral part of the curriculum and regarded as a part of 'visual education', seldom if ever used alone.

Just after the last war, when American educational film programmes were being planned, many regarded silent subjects as out of date, associating them with out-moded silent films in cinemas. The mistake was quickly found out, and now there is almost unanimous agreement that the silent teaching film has a definite and permanent place in the school.

Mr Floyd F. Brooker, Chief of the Visual Education Section of the U.S. Department of Education, writing in 1949 in *International Film Review*, refers to the problem of training teachers in the proper use of films, and describes a five-point programme which has been the basis of training courses:

1. Selecting the film in terms of a given unit of subject matter.
2. Previewing the film and preparing the lesson which includes it.
3. Preparing the class for the showing of the film.
4. Showing the film.
5. Examining the class for the knowledge derived from the film, and the reactions to it.

To-day there are thousands of teachers and hundreds of specialist directors of visual education constantly experimenting with different types of film treatment on various grade levels, and discussions of the varying techniques of using film are one of the most fruitful phases of the teacher-education conferences now being held throughout the United States through the State Teachers' Associations.

Uruguay. Some educational films are made by a section of the Ministry of Public Education. Development of the use of educational films is chiefly in the hands of the Service Co-operative Inter-Americano, which works closely with the U.S. Embassy. It has a

good quantity of 16-mm. projectors and a well-furnished library. Plans are progressing and the field is expected to expand widely within the next few years.

Venezuela. Educational films are new to Venezuela but the School Film Division now has its own library, 16-mm. sound projectors, and a few mobile units. 1,629 shows were given during 1947 in the schools of Caracas, the only place where exact figures are available. The total attendance at these shows was 114,800.

Chapter V

PLANNING AND PRODUCTION

As WE HAVE learnt, during the pre-war period some commercial companies produced valuable educational films on their own initiative, and, in so doing, helped to lay the foundations for the present recognized approach to production. Prior to 1939 a number of teachers stated that to satisfy the very varied needs of their profession and achieve necessary standards of technical and academic education, classroom film production and distribution should be sponsored by the Government. The problem, they felt, was clearly one for the Ministry of Education, and even prior to 1939 a feeling existed among educationalists that the best way to achieve efficient and integrated production would be to establish a body of experienced specialists to organize production and distribution.

In pre-war years distribution lacked integration. As we know, there were film libraries, both commercial and non-commercial, but no authoritative source of information as to their contents, nor any clear-cut method of ascertaining which films were most suitable for various age groups.

War-time experience served to emphasize these limitations, and it became clear that the teaching profession was not sufficiently experienced in the use of film to articulate, for some time to come, its own needs, whilst most professional producers were ready to admit they did not possess sufficient knowledge of the teachers' point of view. The P.E.P. *Report on the Factual Film*, discussing this problem, proposed the appointment, by the Ministry of Education, of a visual educational council to be concerned with *all* aspects of the subject. It was advocated that the Council should present an annual programme of production to the Ministry of Education, and teachers and subjects experts should be appointed to advise producers whenever necessary.

A scheme along such lines was long overdue, and in 1946 the teachers' associations in England and Wales, together with local education authorities, took the first step towards the co-ordination of educational film production.

In November of that year, the National Committee for Visual Aids in Education was set up by these authorities to formulate the visual aids requirements of teachers, training colleges, and education departments of universities, and to plan a long-term visual education policy. It included representatives from the County Councils Association; the Association of Education Committees; the Association of Municipal Corporations; the London County Council; the Welsh Federation of Education Committees; the Association of Teachers in Technical Institutions; the Association of Teachers in Training Colleges and University Departments of Education; the Joint Committee of the Four Secondary School Associations; and the National Union of Teachers. In addition, five assessors were appointed by the Ministry of Education.

The scope of the National Committee, defined in its Constitution, is comprehensive. With a sphere of operation covering England and Wales, its functions include: planning a visual education policy for the whole area; collecting and collating the views and proposals of local education authorities, teachers, and all bodies concerned with visual aid education in schools, colleges, and other establishments; determining what films should be produced, and assessing the value of all educational films made without reference to the National Committee; nominating, on request, educational advisers for films produced other than at the request of the National Committee; developing regional film libraries through local education authorities; encouraging the purchasing of suitable films for use in their areas, and advising on the setting up of local film libraries; advising local authorities and the Ministry of Education on the supply, selection, and maintenance of suitable projection equipment; carrying out research into all methods of visual education, in consultation with the National Foundation for Educational Research, and other specialist bodies; raising the standards of film appreciation among children and adolescents; supplying information on films and other visual aids to local education authorities and teachers; finally, encouraging the provision of facilities for the training of teachers in both the production and manipulation of all visual aids.

It is immediately clear that concrete results from so vast a programme cannot be expected for some time. In 1950 the work as a whole was still in the experimental stage, and understandably so. However, a number of important steps have already been taken by the National Committee, and it is intended to implement the work in progress at the national level by the creation of complementary

organizations which will, at national, regional, and local levels, deal with some of the specific problems involved.

The National Committee embarked on its work by adopting every available measure to provide teachers and local education authorities with all suitable visual aid material, apparatus, and information in existence at the time.

In March 1947 panels of teachers were established to prepare recommendations for the guidance of the Preparation and Production Committee of the Ministry of Education. These panels were asked to prepare an interim programme of films and other visual material, and to recommend educational advisers for each of the films to be produced. Five panels were created, to cover the whole range of primary and secondary education on the following basis: Nursery-Infant Panel (up to seven years); Junior School Panel (seven to eleven years); Secondary Schools Panels for age-groups eleven to thirteen, thirteen to fifteen, and over fifteen.

Panels for age-groups were decided upon in preference to subject panels as it was felt the latter would tend to militate against the integration of the curriculum. It was intended that the panel members should represent groups of subjects for students at various age-levels, and provision was made for the temporary co-opting of members for specific purposes. In addition, the advice of such specialist bodies as the Geographical and the Historical Associations would be obtained whenever necessary.

By July 1947 the five panels were able to submit an interim report, which, adopted by the National Committee at the end of that month, was forwarded to the Preparation and Production Committee, an experimental technical body of representatives of the Association of Specialized Film Producers, the Federation of Documentary Film Units, the Kinematograph Manufacturers' Association, and film strip producers, as well as representatives of the National Committee and the Ministry of Education. Its main concern was the execution of the programme presented by the National Committee, and it also provided producers and users with opportunities to discuss problems of production, distribution, and equipment.

The interim report submitted by the panels indicated certain main lines of policy which were to determine the general policy of the National Committee. The panels, whilst devoting their attention primarily to film, made it clear that attention should also be directed towards the production and distribution of other accepted forms of visual aids, and that such aids as wall charts and models should not appear solely as adjuncts to the films.

The full range of the film should be utilized, the Report asserted, and it stressed the necessity for both long and short films, pointing out that, hitherto, the greatest lack had been in the number of short films available to teachers. Both sound and silent subjects were needed, but under no circumstances should the visual part of a sound film merely divorced from its track be regarded as equivalent to a silent film. The silent film should always be scripted and produced as such. In the case of sound films, the Report strongly recommended the maximum use of *natural* sound, and that the commentary should be sparingly introduced. (It is interesting to note that this view appears to be held by the majority of teachers to-day. The point is discussed in some detail in the next chapter.)

The importance of colour was stressed, the panels recommending the production of a number of colour films. In particular, the Infant Panel stated that all films made for children in that age-group should be in colour if possible. Members of all panels were aware, however, of the almost insuperable technical and financial obstacles presented by production in colour, and stated that they realized large numbers of colour films could not be expected for any specific age-group for some time to come.

Other points in the Report included a recommendation that films, as with other visual aids, should be planned for specific age groups; that certain experimental films, concerned with subjects such as the teaching of English, mathematics, or the training of teachers, should be produced; and, finally, that teachers' notes should accompany all visual material. The new programme of the National Committee, issued in the autumn of 1948, showed that recommendations made by specific panels had been closely followed.

The Infant Panel, noting the general lack of information on the use of films in infant schools, emphasized the need for continual experiment, and submitted a programme for children of up to seven. The recommended films were simple biological studies of animals familiar to children, intended to show their general activities and movements, and not to portray life cycles. The panel suggested that these should be silent and made in colour, without captions. It was felt other films should be made with natural sound, but without commentaries. Each film was to be accompanied by a film strip, together with drawings or photographs for the children's actual use, and teachers' notes.

A strong protest was made by this panel against the increasing use of the grotesque in pictures for small children, and it was stated that

the policy of producers should be to provide natural subjects in natural settings.

A later programme of the National Committee for the production of films for the under seven age-group abided by these recommendations.

First, there were to be four single reels on natural history with a natural sound and a silent version of each, to show the general activities of ducks, pigs, blackbirds, and squirrels; secondly, four short reels on the countryside, lasting from three to seven minutes, illustrating various localities and seasons, all silent; thirdly, four on wild animals, to last three minutes each, also silent, dealing respectively with the giraffe, the kangaroo, the bear and the wolf.

All these films on the schedule for infants were to be associated with strips, charts, and individual pictures in colour.

The recommendations of the panel concerned with visual aids in junior schools, outlining a future policy, stated that requirements fall broadly into four categories. First, there is need for material that teaches children more about familiar persons and objects; for example, a series entitled 'People Who Work For Us', showing the work of individuals within the community, their conditions, their materials, and how they use them, emphasis throughout to be placed on the individual rather than on the mechanics of the various occupations. A more recent programme proposed an additional seven silent black and white films in this series, each to last about seven minutes, and to include the postman, the dustman, the plumber, the policeman, the milk roundsman, the dairy farmer, and the rural milkman. The panel also suggested a series presenting simple records of how certain foods are provided, under the general title of 'Our Food'. The subjects so far made have been a success with junior school teachers, and a new programme proposed a further four—*Market Gardening*, *Milk*, *Fruit and Jam*, and *Cocoa*.

The Junior School Panel recommended the making of nature films extending the range of knowledge and stimulating further enquiry among pupils in junior schools, and stated that such films would be supplementary to those recommended by the Infant Panel, and should be designed to carry study a stage further by showing processes not easily seen in natural conditions, while encouraging a closer study of actual specimens. Proposals for future production in this group include three silent single-reel nature films, showing birds nesting, seed dispersal, and bird flight.

Finally, recommendations were made for the production of films introducing unfamiliar material, not readily within the reach of

many children, yet making a strong appeal to their interests and sympathies, such as a series on 'Children of Other Lands', accompanied by film strips in colour illustrating national costumes. These films, showing life in Australia, Egypt, Holland, Lapland, Morocco, Norway, Switzerland, and U.S.A., would be silent and in black and white. Another series is 'Things We Use' for junior school use, illustrating the making of such everyday articles as books, glass, cups and saucers, and cutlery.

The panel which sat to consider the use of visual aids in secondary schools pointed out that the greater part of existing material is mainly directed towards the 'A' streams[1] of secondary modern, technical, and grammar schools. A further point emphasized that most available films necessitated the lesson being fitted to the film, rather than the more desirable way of fitting the film to the lesson.

All three panels stated that the value of films assisting in the teaching of social studies could not be over-emphasized. The thirteen to fifteen age-group panel said that first consideration should be given to visual material under the general title 'How People Live', such social studies having special importance in the closing years of a child's school life, when social and vocational interests are developing, and, for the majority of children, this period is still between thirteen to fifteen years. The general purpose of such a series would be to illustrate contrasting types of living, and so to aim at extending the kind of experience which was obtained by children when evacuated during the war. Such studies could extend the conception of citizenship from local to national dimensions, and stress the interdependence of widely separate communities.

Accordingly, the 1949 programme of the National Committee provided for eight two-reel films, with sound and silent versions of each, dealing with such diverse industries and occupations as steel, Harris tweed, fruit, coal, milk, furniture, glass, and pottery, these to be supplemented by a further series, 'Processes', consisting of silent three-minute films explaining such techniques as ploughing, harrowing, hedging and ditching, milling, and threshing. Others deal with the fishing industry, showing cod liver oil preparation, fishing and lobster catching, and with crofting, peat cutting, iron smelting, charging a blast furnace, and rolling mills.

Recommending the production of these films, the panel pointed out that emphasis should be on the human factor, and that each topic should have as its starting point a present personal need, the material to be conceived in terms of social studies with the topic

[1] For A, B, C, and D streams clarifications, see p. 197.

approach, rather than in terms of a specific subject. These recommendations are being carried out, and children seeing the films will obtain a clear picture of industries in which they may eventually work, and learn, too, of the ways in which their fellow-countrymen earn their livings, thus obtaining a fuller understanding of the industrial character of the country.

Throughout, the panels for the two age-groups covering eleven to fifteen years emphasized the need for visual material on matters concerning skills and activities. They pointed out that certain subjects such as handicrafts were lacking in suitable teaching material, and submitted a comprehensive plan to supply this need. Again, a series of visual units was planned on various aspects of athletics, games, and agility exercises, it being recommended that each should be made in sound and silent form, together with loops made from the component parts of the silent films, film strips, wall pictures from stills of key positions in the filmed action, and teachers' notes. Slow motion should be introduced where necessary and, at all times, the actions should be viewed from the aspect of the user, so that the children would feel they were participating in the exercises.

The panel stated, in connection with this type of visual material, that pupils should be encouraged to use the film-strips themselves, such repeated viewings enabling them to correct their techniques and postures from time to time. Furthermore, it was clear that, for this kind of purpose, the film-strip had certain advantages over film.

As the panels for the eleven to thirteen and thirteen to fifteen age-groups emphasized that films were needed about post-school activities, so the panel for the age-group of over fifteen considered film needs in similar terms. Education for children in this group, recommended the panel, should be concerned 'with the ends rather than the means', helping boys and girls to frame and consolidate a way of life, and encourage them to look forward to work, responsibility, and the planning of their leisure hours. Visual material should be produced to assist in these aims.

The over-fifteen age-group's programme also provided for a series entitled 'Men and the Landscape', seeking to widen the knowledge of this age-group about the physical divisions of the British Isles, and a series 'Field Work', including such diverse subjects as botanical excursion, historical excursion, zoological excursion, and school visit. Another series illustrates repairs in the home, showing, for example, how an electric clock works, and the dismantling and repairing of a door-lock.

One of the principles which govern the production of films for

this age-group is that the subjects are not tied too closely to the curriculum, especially in cases where it is defined entirely in terms of subjects. The panel recommended that film should be used for breaking down the barriers between subject and subject, and for co-ordinating facts hitherto acquired in isolation.

It can now be seen that the programme initiated by the National Committee in 1948 was based on first-hand experience of teachers' requirements, and framed by those experienced in the needs of children at every stage. The recommendations of the specialist panels have been adhered to, and as a result a number of excellent classroom films have been made available to teachers in schools of every kind. Furthermore, teacher advisers have been appointed to work in conjunction with the producing companies. This stress on the importance of the teaching profession, both in determining the films which should be made, and in their active co-operation during production, has undoubtedly done much to raise standards, and ensure that classroom needs are supplied.

In addition to planning for the provision of such suitable visual material, the National Committee has established an experimental visual unit for the purpose of training teachers in the use of visual aids in the classroom. It is intended that the unit shall show the operation and maintenance of the full range and variety of optical aids—sound film projector, silent film projector, film strip projector, epidiascope,[1] standard lantern, micro-projector. This will prove invaluable, not only to teachers in crowded training colleges and university training departments, but also to those already using visual aids in schools.

In addition to the planning of programmes, there were many other problems to be faced, one of the chief being research, and much remains to be done in this direction. The National Committee for Visual Aids in Education intends to use all the resources at its command for the furtherance of research work, and arrangements are being made whereby the organization of visual aids in local areas can be carried out through existing national associations of teachers, in collaboration with local education authorities. Opportunities are being afforded for the analysis of problems of teaching methods, and teachers are taking part in the assessment of visual material already in existence, as well as of new subjects being put into production.

Teachers are being asked to assist in planning future production programmes not only by stating their general requirements, but by illustrating them specifically in the form of scripts.

[1] See p. 166.

Distribution presented the Committee with a major problem. The whole question having been reviewed, it was decided that visual material shall be held in local, regional, and national film libraries. Some local authorities have already set up their own libraries and it is hoped that many more propose to do so in the near future. There are also to be regional libraries for films of a more specialized nature.

During discussions on this subject it became clear that the majority of film production companies have no facilities for the distribution of educational films, and a proposal was made that a marketing agency should be established through which local education authorities could, whenever they so desired, order prints of films and other visual material for local and regional libraries. The creation of such an agency, it was stated, would prove to be one of the most important steps in the development of the work of the National Committee, and would help to solve many of the problems confronting local education authorities in their desire to provide their teachers with the tools of visual teaching.

Accordingly, the Educational Foundation for Visual Aids was established in 1948 at the instigation of the Ministry of Education. It is an independent body financed by a loan upon public funds, repayable from income derived from sales of films and equipment. The Foundation acts as a central agency to organize the production of the films in the National Committee's programmes, and to purchase prints of them from commercial producers and *sell* them to local education authorities. As local authorities purchase all the various kinds of apparatus required in schools, it was felt that films should not be distributed free, but sold or hired. In the next chapter, to be devoted to distribution, I will describe the hiring plan of the Educational Foundation.

The interrelated functions of the National Committee and the Educational Foundation are as follows: A precisely defined policy for the furthering of the production and use of educational films has been evolved. Teachers throughout England and Wales can make known their wishes and requirements through the five panels composed of teachers and qualified representatives of educational bodies which advise the National Committee on production. The panels draw up programmes of films to be made, and the National Committee, after assessing priority, passes the programmes to the Educational Foundation.

The Foundation arranges for the production of these films in the following way: a programme of required films is circulated to producing companies, either through their associations (such as the

Association of Specialized Film Producers, Ltd), or direct. The list classifies the films under the age-groups for which they are required, and specifies length, whether sound or silent, colour or black and white, but no other particulars are given. If a company is interested in any particular subject, it approaches the Educational Foundation to enquire whether a film on that subject is already being made by another concern. If not, the company confirms its wish to make the film, and the Educational Foundation arranges for an educational adviser to be introduced to the company.

The adviser will not necessarily be an expert on the particular subject chosen, but experienced in teaching requirements, and his or her services will be at the disposal of the producing company throughout the planning and making of the film. The adviser, knowing the National Committee's requirements, is able to guide the producing company through every stage, and if the latter follows the required teaching pattern, there is every reason to assume the film will be accepted for distribution by the Foundation. If for any reason a film should not be acceptable, the producing company would be in a sorry plight, because it has to pay all production costs; only limited funds have been available for productions sponsored by the Educational Foundation.

When a film has been accepted, the Foundation will order from the producer a number of positive prints, for which it will pay £12 10*s*. for a single 16-mm. reel (400 feet) of *sound* film, or £10 for a *silent* subject of the same length, less 33⅓ to cover discounts to local authorities, and distribution costs. Although print requirements necessarily vary with every subject, the Foundation usually begins by ordering about ten prints for preliminary showings in various centres. The approximate cost of reducing a 35-mm. sound film, 1,000 feet in length, to 16-mm. is £3 and, a silent print of the same length, *also reduced from 35-mm.* slightly less. The cost of either a sound or a silent print, 400 feet, if made from an *original 16-mm. negative* is about £2 10*s*. and so the margin of profit to the producer on each *print sale* is apparent. Even if an educational film costs as little as £500 to make—a figure that would be regarded as exceptionally low by most producing companies—unless a large number of prints are ordered from the producer, he will not regain his production costs, or show any profit on the job. With a good film the Foundation may order 25 to 100 prints in twelve months, but the quantity required can never be exactly known beforehand. Only by very economical production can a company hope to regain costs. If production has been costly, there will undoubtedly be a loss.

Prior to the establishment of the Educational Foundation, a number of educational films were sponsored by the Ministry of Education for the National Committee via the Central Office of Information, one example being *The Jack Plane*, the production of which I am going to discuss in detail later in this chapter. To-day, as I have explained, the making of all such films has to be financed by production companies on the above lines, and a number of them are disinclined to carry such costs, or they find the method financially impossible. Directly related to this is the present high cost of film-making.

A documentary or educational film costs a minimum of £1 per foot to make in 35-mm., and usually from £2 to £3 per foot, or even more. It is said that any educational film made for more than £1 10*s*. a foot would mean that costs could not possibly be recovered until several hundred prints had been purchased. Only when every local education authority is a purchaser of prints will this occur. Assuming a producer is working in 35-mm. standard size film (to be reduced to 16-mm. on completion), then a single reel of 1,000 feet (400 feet in 16-mm.), at £1 10*s*. per foot will cost £1,500, and will run for eleven minutes at sound speed (£3,000 for twenty-two minutes).

Whilst many of the National Committee's required films are necessarily simple in character, it does not follow that they are simple to produce. Nevertheless, simple or complex, whether set in one location or necessitating journeys to scattered places, the producer, with his present high technical and labour costs, cannot easily make a film economically. A great deal depends on whether he produces in standard 35-mm. film and reduces the result to 16-mm., or produces *direct* in sub-standard size. For financial reasons he will be wise to work in 16-mm., for then his stock and processing costs will be lower, and he will not have the additional cost of reducing his standard film to sub-standard. Most documentary companies have been producing for government departments during and since the war, and have invariably worked in 35-mm., their contracts being fulfilled by delivering standard size films, the departments concerned then ordering 16-mm. reduction prints according to their needs. Thus, most companies are geared to produce in 35-mm., and although a number do possess 16-mm. apparatus—cameras, cutting-room equipment such as splicers, rewinders, and, in a few isolated cases, 16-mm. editing machines—the majority are equipped for working in 35-mm. only.

In my opinion a scheme under which the producer takes the full

risk is not a good one under existing market conditions. Producers as a whole cannot be expected to agree to pay for production without any guarantee that they will regain their money, and whilst I appreciate that direct government aid is not generally provided for educational requirements, there seems to me good reason for treating educational film production as an exception. The use of the film in schools is still in the early stages of development; there are insufficient projectors to justify the production of films on a commercial basis. In these respects the provision of films for schools has no parallel in any other school requirement, and would seem to justify special consideration. Had a government grant been made to the Educational Foundation for this purpose, the plan would certainly have been expedited and production concerns would have been able to work on a reasonable commercial basis.

One point in favour of the present method is that it may compel producers to devise ways and means of making films more economically to save their pockets. The result of government sponsorship throughout the war and post-war years, whilst resulting in a large and varied programme which has certainly established factual films, has undoubtedly developed extravagant methods in the average film-maker, many such films costing far more than they need do. Only when a producer has to pay for everything out of his pocket does he begin to practise economy, and realize that his aim should be to produce the highest quality for the lowest possible price.

Although the Ministry of Education does not directly finance production, it lends both the National Committee and the Educational Foundation all necessary support and encouragement. In addition, certain industrial sponsors make their own productions, either in consultation with the National Committee, or on their own initiative. When suitable for classroom use, such films are sometimes marketed by the Educational Foundation, or teachers may contact the sponsors direct.

It is now pertinent to consider the actual production of educational films from the time a subject, together with recommendations for its treatment, is handed over to the producer until the day the completed film is accepted for distribution.

Whatever the type of film, it must be expertly produced or much of its teaching value will be lost, and expert production means more than technical excellence. It means the film must be suitable for use by teachers in specific lessons for specific age-groups. It is obvious, therefore, that producers need to work in the closest co-operation

with teachers if their productions are to satisfy educational requirements.

In a broadcast talk on the use of films in university education, G. Kitson-Clarke, Chairman of the British Universities Film Council, stated his opinion that probably the most effective method of producing educational films would be for the various teaching groups to possess their own film units. People whose business it is to teach, and to handle visual aid equipment in classrooms, obviously know best what are the essential requirements, but for a considerable time it seems that teachers' producing units will be impractical. Teachers do not yet possess the technical knowledge and experience necessary for film production, even though they usually know what the finished product should be like. I have mentioned that plans are being made to train teachers in production, and also that a certain amount of amateur production (often of great value) has already been achieved by such groups as the Dartington Hall Unit. Individual teachers, too, mainly on the science side at university level, as well as doctors, have been making very valuable films as we now know. It is clear, however, that for a long while the majority of educational subjects will be produced by professional units, and, moreover, that the work of such units will remain in demand even after the eventual setting up of production units by universities, schools, and other educational establishments.

The first rule, therefore, is that the closest possible collaboration must exist between teachers and producers, and the National Committee having made provision for this by appointing educational advisers to assist producers at all stages of film-making, every wise producer will co-operate with them to the fullest possible extent. The appreciation of the importance of teacher co-operation has undoubtedly raised the standard of educational films since the war.

Sometimes, of course, an adviser can create difficulties for the producer through ignorance of the complexities of film-making, just as the over-confident producer can override the adviser, and perhaps regret having done so, but if good sense governs the team the result is bound to satisfy educational authorities.

The following example of the making of a specific film will illustrate how the combination can work. The eleven to thirteen Age-Group Panel of the National Committee decided on the production of a film to teach the use of the jack plane to woodwork classes, and the subject was allocated to my company by the Central Office of Information, through which department the film was made before the launching of the producer-sponsor plan. Our preliminary

brief informed us of the age-group for which the subject was intended, that the film was to be silent, and black and white, and gave us the name of the adviser whom we should contact to obtain all details needed for the preparation of the script. The adviser was a technical instructor in a school in the Midlands, and we went to see him. He gave us a detailed demonstration of the tool, and explained exactly how it should be presented on the screen from an instructor's point of view. We took notes and made sketches of every necessary detail and then prepared a draft script, which we submitted to the adviser for revision. It so happened there was little wrong with our first draft and so when the adviser's corrections had been embodied in a second draft, the script was sent to the Controlling Officer concerned in the Films Division of the C.O.I. for discussion with the National Committee. (To-day all such discussions are held with the Educational Foundation, which is entirely responsible for production.)

At our first discussion with the adviser, an essential point had to be decided; was the film to be self-explanatory, or dependent upon an instructor's *verbal description* whilst being projected? Both the adviser and ourselves felt the subject should be self-explanatory, which meant, of course, including a comparatively large number of descriptive captions in the script. Here is a copy of the second draft of the script, technically correct from the adviser's point of view and designed to make a *self-explanatory* film, as submitted to the National Committee via the C.O.I. (As explained in the teaching notes, the movements in the film are seen from the demonstrator's point of view.)

SECOND DRAFT[1]

Fade in Main Title:	*The Jack Plane.*
Fade out and into:	M.S.[2] Jack Plane standing in the well of a bench, its Toe resting on a strip of wood.
Caption:	*The Jack Plane is used for rough planing.* M.C.U.[3] Jack Plane.
Caption:	*When not in use, its Toe should stand on a strip of wood to protect the cutting edge.* C.U.[4] Toe of Jack Plane raised on the strip of wood.

[1] The film script and teaching notes of *The Jack Plane* are reproduced by permission of Films Division, Central Office of Information.
[2] Medium shot. [3] Medium close up. [4] Close up.

Caption:	*The Parts of the Jack Plane.*
	M.C.U. The Jack Plane centre. Cards bearing the names of the parts are arrayed around and on the plane, so that each is clearly identified: Sole; Heel; Handle; Escapement; Button; Toe; Mouth; Blade or Cutting Iron; Curling Iron; Wedge.
Fade out and into:	M.S. The Jack Plane. All cards have been removed. Hands enter and dismantle the parts, placing them in a row in front of the body of the plane: Cutting Iron—Curling Iron—Wedge. Hand then places cards bearing these three names against the parts so that they are clearly identified.
Caption:	*Putting the Parts Together.*
	L.C.U.[1] The Cutting Iron, which is turned over to show the Cutting Edge with maximum emphasis.
	M.S. Hands pick up both the Cutting Iron and the Curling Iron.
Caption:	*The Cutting Iron is fixed to the Curling Iron and slid down to within $\frac{1}{16}$th of an inch of the edge.*
	C.U. The assembling of the two irons is demonstrated—the screw head being slipped through the top part of the key-hole-shaped slot in the Cutting Iron, and slid down to within $\frac{1}{16}$th of an inch.
Caption:	*The $\frac{1}{16}$th of an inch setting is for soft woods. A finer setting is needed for hard woods.*
	L.C.U. The Cutting Edge. The screw is being tightened.
Caption:	*Then lift the Plane, rest the Heel on the bench, and tip back until the eye can see the whole length of the Sole.*
	M.C.U. Elevated Camera looking over the shoulder, down length of the plane. The Irons are now placed into the Escapement.

[1] Large close up.

Caption: *The edge of the Cutting Iron must project through the Mouth to resemble a thin pencil line.*
L.C.U. The thin protruding edge is seen, filling the screen.

Caption: *The Wedge is inserted into the Escapement . . .*
M.S. Camera looking down on Escapement as Wedge is placed in position.

Caption: *. . . and tapped into position very carefully, so that the Cutting Edge is not driven farther out.*
M.S. The Wedge being hammered gently into the Escapement.
C.U. Elevated camera shows the two Irons and the Wedge in position.

Caption: *Setting the Jack Plane. If the Cutting Iron has been driven too far out, tap the adjusting Button smartly, whilst holding the Blade with the thumb of the left hand.*
M.C.U. Cutting edge seen to be too far out. The Blade is held, and the Button tapped.

Caption: *If the Cutting Iron has become tilted to the left, or right, straighten it by tapping.*
L.C.U. Cutting Edge tilted too much on one side.
M.S. It is tapped into position.

Caption: *Or if it has moved inwards, tap it into position on top.*
L.C.U. Mouth, showing that Cutting Edge has receded.
M.S. Tapping into position.

Caption: *The Cutting Edge must protrude from the Mouth evenly, and not thicker than a thin pencil line.*
L.C.U. The Cutting Edge seen in maximum close-up, in correct position.

Fade out and into:

Caption: *How to Use the Jack Plane. Grip the Toe with the Left Hand . . .*
C.U. Jack Plane centre. Left hand grips the Toe.

Caption: *. . . and grip the Handle with the right hand, with the forefinger on side of Cutting Iron to keep the Plane steady.*
Right hand grips the Handle, and forefinger moves to side of the Cutting Iron.

Caption: *Stand so that the Wood, Jack Plane, right forearm, and right shoulder are in line.*
M.S. Elevated camera looking down and along the line of wood, plane, right forearm, and right shoulder. A few dummy strokes are made to demonstrate a piston-like movement.

Caption: *Keep the left foot forward, toes slightly under the bench.*
C.U. Camera pans down to show position of the left foot, and then pans up again to see the dummy strokes being continued.

Caption: *Place the right foot about* 18 *inches back, toes close to bench, knee slightly bent.*
C.U. Camera pans down to show right leg and foot.

Caption: *Body and shoulders should be almost at a right angle to the bench.*
M.S. Position of the person in relation to the plane.

Caption: *As the Jack Plane is driven, the body rocks and the knees bend slightly.*
M.S. Previous shot continued as plane is driven to and fro. Emphasis on body movements.

Caption: *Pressure is first thrown on the Toe, and then as Jack Plane moves forward, on to the Heel.*
C.U. Camera follows the Plane as it is moved slowly as far forward as possible, and then back—several times.

C.U. The plane is now in actual operation. Camera looks along the length of wood as the plane comes towards it.

C.U. The plane moves away from the camera which is now behind it.

M.S. Waist-level shot of the plane and the user, in action.

Caption: *The Curling Iron rolls and breaks up the shavings so that they do not obstruct the action.*

M.C.U. Elevated camera. A full length shaving is seen planed off. It is picked up and unrolled, and then placed along the wood from which it has been planed, showing how evenly it has been removed.

Diagram: Sectional view of the Jack Plane as it is operated, showing the shavings curling up as they come in contact with the Curling Iron.

M.S. Several more strokes are made, and then the Jack Plane is stood aside, its Toe being rested on the strip of wood. The piece of wood that has been planed is lifted from the bench.

Caption: *How to test that Planing is true. No light should show under a straight-edge when placed in the following positions.*

M.S. The piece of wood is held up against the light of a window, and a straight-edge or ruler is placed along it in the following four positions: First corner to corner; Straight through; Second corner to corner; Alternative ends.

Caption: *The 'Face Mark' is then put on the planed side with a pencil.*

C.U. Face Mark being pencilled on surface.

Caption: *Then the edge must be planed, tested, and marked.*

M.S. The wood is clamped into a vice so that the edge can be planed. After planing, it is removed and . . .

	C.U. . . . The edge is tested against light for being square and level as follows: A straight-edge or ruler is held on the wood. A try-square is used to test for square. The 'face mark' is then pencilled on the edge.
Fade out and into:	
Caption:	*Once again, this is how to use the Jack Plane correctly.* M.S. Elevated camera. Recapitulation of the complete action—lifting up plane—planing surface and edge, and testing.
Fade out and into:	M.S. A door or other article being made, and the Jack Plane being used in the process.

THE END

Though complete and self-explanatory, such a film would need to be projected several times before *all* essential points and instructions could be memorized by pupils, but that is the case with most subjects. However, the National Committee rightly considered the script contained too many captions, which interrupted the pictorial action. It was thought that a visual demonstration with a minimum number of captions would hold the pupils' attention more firmly, *and that the instructor should give a verbal description where necessary.* A film strip was also decided upon to recapitulate the essential points. Accordingly, we revised the script, eliminating a number of the captions, thus leaving certain points and operations *unexplained.* By permission of the National Committee I am able to include here the complete teaching notes which accompany this film, giving full details of the *final* version of the film, so that the reader may draw a comparison between the first script designed to make a self-explanatory subject, and the accepted version needing verbal amplification.

TEACHING NOTES FOR 'JACK PLANE' FILM

Technical Details

The film is silent.
Length: 462 feet (16-mm.).
Running time: 13 minutes.
Age-group: Eleven to thirteen.

Note: The film is made at sound speed and therefore must be projected at 24 frames per second; most silent projectors can be run at this speed.

Users of this film should note that there is a film strip on 'The Jack Plane'.

This film, one of a series dealing with the tools used in the Handicraft Room, is intended to supplement the demonstration of the use of the JACK PLANE.

It is primarily intended for children of twelve years and attention is particularly focused on methods of handling, which are often lost when the group is large and when so many other distracting features are around them for the first time.

Questions such as 'How does the Blade cut?', 'Why do the shavings curl and come out of the Escapement?' are shown and answered by diagrammatic film.

Summary of Film

PART I.

Caption: The Jack Plane.

The plane is shown standing in the well of the bench.

Caption: The Jack Plane is used for Rough Planing. An opportunity presents itself at this point to explain to the class that this particular plane is the first plane to be used when wood arrives in a rough cut form.

As a very important part of early instruction deals with the care of tools, emphasis is focused on the *TOE* of the plane which is supported on a strip of wood, keeping the blade clear of the bench.

Caption: The Parts of the JACK PLANE. The plane with its component parts labelled is shown; and then Wedge, Cutting Iron and Curling Iron are dismantled to show them more closely.

Caption: Putting the Parts Together. The method of assembling the plane and adjusting the Cutting Iron in relation to the Curling Iron is shown.

It might be pointed out at this stage that different types of wood require that the blade be set to different degrees of fineness.

Caption: Setting the Jack Plane. The Irons and Wedge are now inserted into the plane and various faulty adjustments are seen, with the manner of correcting following on.

First. Too much iron is given to the tool. The Blade is held to prevent it from sliding right out whilst the Button is struck with a hammer.

Secondly. The Blade is seen projecting more on one side than the

other. This is corrected by tapping the top of the Blade on the opposite side.

Thirdly. The Blade has receded and has to be tapped out with a hammer.

A close-up of the Blade looking down the sole of the plane is shown giving the correct position. The Blade should appear as a fine pencil-line.

PART II

Caption: How to use the Jack Plane.

The film now deals with the manipulation of the Plane. Captions have been introduced to focus attention on the various actions before the picture is shown. This prepares the class for what is coming and the material that is relevant. First the hands are placed in position separately—the left hand and then the right.

Caption: Wood, plane, right forearm and right shoulder must be in line.

Dummy strokes are made to illustrate the piston-like movement which takes place when planing is done. No shavings will be seen coming from the Escapement during these movements. It was felt that the boy of twelve years would be fascinated by the shavings and overlook the action which is the essential part at this stage.

Caption: Position of Feet.

The position of each foot is clearly shown. First that of the left and then the right.

Caption: Position of body and shoulders almost at a right angle to the bench.

Planing is still in progress and the position of the person in relation to the plane is shown.

Caption: The body rocks and the knees bend slightly.

Several shots show this body and leg movement, giving the instructor ample time to explain this action in his own particular way.

Now the Jack Plane is actually seen cutting the wood with the shavings curling and being ejected from the Escapement.

Caption: The Curling Iron rolls and breaks up the shavings so that they do not block the Plane.

A shaving is planed off and shown against the wood from which it has been planed to indicate the length and width of shavings that should be produced when planing is properly performed.

A diagrammatic shot is now introduced to show the cutting action of Blade and curling action of the Iron.

Caption: How to test that planing is true. First method.

The method shown first is by straight-edge or ruler. The wood is tested from corner to corner and then straight through.

Caption: Second Method.

Twisting sticks or winding sticks are used. The face-mark is pencilled on.

Caption: Planing and testing the edge.

Here the wood is placed in a vice. It should be noted here that an alternative method of holding the Plane, used for narrow surfaces, is employed. The left hand is seen with the thumb on the Toe of the Plane and the fingers underneath, the Sole acting as a guide. The Face-edge is marked after being tested for true with a try-square and straight-edge.

Caption: Once again, this is how to use the Jack Plane.

A recapitulation of the complete action of using the plane and testing for true working is shown.

The film ends with a view inside a handicraft room with advanced students working on a model staircase. The Jack Plane is in use and is being held in the alternative manner shown.

It will be observed that as a result of the elimination of many of the captions included in the first script the teacher will need to explain the following points to the class as the film is being shown. Even though some of them are made clear by the action on the screen, they require verbal emphasis. (I have italicized the essential facts which are *not* explained by action or caption.)

When not in use, the Toe of the Jack Plane should stand on a strip of wood *to protect the Cutting Edge.*

The Cutting Iron is fixed to the Curling Iron and slid down *to within $\frac{1}{16}$th of an inch of the edge—this being the setting for soft woods—a finer setting being needed for hard woods.*

When assembling, the Plane should be lifted and its Heel rested on the bench and then tipped back until the eye can see the whole length of the Sole.

The wedge is inserted into the Escapement and then tapped into position with extreme care so that the Cutting Edge is not driven further out.

The edge of the Cutting Iron must project through the mouth *to resemble a thin pencil line.*

A caption is included, 'Setting the Jack Plane', but the instructor will need to explain *that if the Cutting Iron has been driven too far*

out, the adjusting Button should be tapped smartly whilst the Blade is held by the thumb of the left hand. If the Cutting Iron has become tilted to the left, or right, it must be straightened by tapping, or if moved inwards, it should be tapped into position on top.

A caption is included to serve as a chapter heading, 'How to Use the Jack Plane', but leaves to verbal description *the actual position of the hands* (even though these are carefully shown on the screen)—*Toe gripped with left hand, and Handle with right hand, keeping the forefinger on the side of the Cutting Iron to keep the plane steady.*

A caption states, 'Position of Feet', but the instructor must explain that *the left foot should be kept forward with the toes slightly under the bench, and the right foot about* 18 *inches back, toes close to the bench, and the knee slightly bent.*

A caption states, 'How to test that planing is true. First Method', *leaving to verbal explanation the use of a straight-edge, and the adding of a 'face mark'.*

Similarly, *testing by twisting or winding sticks has to be verbally described*, for the introducing caption merely states, 'Second Method'.

The film, therefore, needs considerable verbal description throughout to ensure that the visuals are completely understood. My personal view is that a film of this type should be *self-explanatory* even though this necessitates a large number of captions. Either that, or *no captions at all*, leaving all the action to be described by the instructor. Combining the two methods may be satisfactory, if and when carefully rehearsed by the instructor, but much time would be saved if the film required no further elucidation. Alternatively, to enable the instructor to infuse the film with his familiar personality, he might with advantage read out the captions as they appear, to give them double emphasis.

In some cases, I suggest, there is justification for the inclusion of captions which state the obvious, to give maximum emphasis to the action. Admittedly, captions do interrupt the flow of visuals, but if action is filmed at a leisurely tempo and all captions fade smoothly in and out instead of flashing on and off abruptly, then interruption is reduced to a minimum. It is also essential to arrange, wherever possible, for each section of demonstrated action to begin and end between the captions so that action is not blacked out in a disturbing fashion. It will have been noted that a single diagrammatic sequence was included in Part II of the film. First, the Jack Plane was seen in action, shavings emerging from the escapement. Then the action

was repeated diagrammatically, for the rolling and breaking up of the shavings *occurs inside the plane* and only by presenting a drawn cross-section of the tool could the whole operation be made visible. Then the scene reverted to the actual plane performing the same action again.

In my experience, an expert adviser is essential in the making of such films, not only to provide the technical data and check the script to ensure accuracy, but also to be present throughout actual filming. During the production of this film, every shot was discussed by adviser, director, and cameraman, the angle, action, and tempo agreed upon, and sketches for the diagram checked by the adviser before going forward for animation. After filming was complete, we invited the adviser to view the rushes on the screen, prior to assembling them.

Even though an adviser may be inexperienced in film production, his teaching experience tells him which points require pictorial emphasis. Any experienced producer can, of course, make an excellent film on, say, such a simple subject as the Jack Plane without the aid of an adviser, and would present a good pictorial analysis of the subject, but I doubt whether he would include all the necessary teaching points, or apply emphasis in each of the right places. I doubt, too, if he would be able to keep his film sufficiently simple, for, unless restricted, he might be tempted to introduce additional scenes and/or angles to liven up the subject, which would not increase the teaching value, and would probably be a distraction.

I have intentionally dealt with this particular film at considerable length so that it may serve as an example of the basic approach to production of the teaching film. It is a simple subject, but the difficulty lies in keeping the presentation equally simple; camera devices which do not add to clarity must be avoided.

I have always found it wise to assume the pupils at classroom level know next to nothing about a subject, whether it be using a Jack Plane, cooking green vegetables, or geography. Once a film is planned on the assumption that pupils already know this or that point, the instructional value is seriously weakened, irrespective of age-groups. What one pupil knows has not necessarily been grasped by another; also, what has been learnt by non-visual methods may not easily be recalled to supplement visual instruction while it is in progress. Furthermore, instruction in all the stages of a process acquired by the same method in the same lesson will obviously be easier to memorize.

TEACHING NOTES CONTINUED

Suggested Methods of Using Film

The method of using the Jack Plane and an explanation of its component parts could be given a week before the showing of the film, i.e. at the initial introduction to the tool, this demonstration to be followed by practice work by the class. Individual scholars could interpret their method, after practice, to the whole class. The film could now be shown and the various faults explained in relation to the picture. Alternatively the film might be used before the actual demonstration and the various points explained. This would be followed by demonstration with the scholars looking for, and checking up on, the details already explained.

The film may be shown in one or two separate parts.

1. The parts of the Jack Plane.
2. The use of the Jack Plane.

It is not intended that this film should in any way replace the actual demonstration but help to clarify some of the difficulties that arise when dealing with children at twelve years of age in groups of twenty. Thus, after the film, practice might again be introduced, with attention focused upon individual parts of the body.

It should be noted that the film shows the movements from the demonstrator's point of view, and not as in a mirror.

General Information

The Jack Plane is used for almost all planing processes. It is generally the first plane to be used by the student and the first plane to be used on wood coming from the mill. It is 'the jack of all planes'. Length varies from 14 to 20 inches for handicraft and technical work, with irons 2 to 2⅜ inches wide. It is usually made of beech.

TEACHING NOTES FOR 'JACK PLANE' FILM STRIP

It is intended that this film strip, 'The Jack Plane', shall supplement the actual demonstration and be capable of affording revision for the class or individual.

The Jack Plane is one of the first tools to be used in the handicraft room by boys of twelve and older. At this age, the plane, which will later become a common tool, is very complex and difficult to manipulate.

Constant repetition and revision are the only means of overcom-

ing these difficulties. The strip enlarges, and focuses attention on, the varied holds and parts, in order to help towards this end.

Contents of Film Strip

Caption: *The Jack Plane.*

Frame 1. The Blade being sharpened on an oil-stone. As the efficiency of the tool depends upon the keenness of the Blade, sharpening is of first importance. The Blade, which is first ground to an angle of 25 degrees on a grindstone, is then sharpened as shown on an oil-stone to a cutting angle of 30 degrees. Oil is used as a lubricant and the width of the stone is utilized in every stroke.

Frame 2. The sharpened Blade. The grinding and sharpening angles are clearly seen. The edge is slightly rounded to prevent the corners from digging into the wood.

Frame 3. The body of the Plane is shown, lying on its side with the Mouth clearly seen. The Blade, or Cutting Iron, Curling Iron and Wedge are shown taken apart.

Frame 4. The efficiency of the plane depends upon the 'setting' of the Blade and Curling Iron. The two irons are shown screwed together. It should be noted that the 'set' varies according to the particular type of wood being worked and the degree of fineness that is required, the distance for soft woods being about $\frac{1}{16}$th of an inch.

Frame 5. The Blade is inserted into the Escapement, held there by the thumb, and the Wedge placed into position. The Wedge needs to be tightened by tapping with a hammer.

Frame 6. The Plane is now shown with its component parts in place, with the Toe resting on a piece of wood. This wood keeps the sharpened Blade off the bench and prolongs its keenness.

Frame 7. It is necessary to check the Blade for 'true' before using the Plane. This frame shows the Plane being held with its Sole uppermost and its Heel on the bench. When one looks down the Plane in this manner, the Blade, if true, is observed to resemble a fine pencil-line, which is slightly curved but of uniform thickness. If this is not so it must be readjusted.

Caption: *Using the Jack Plane.*

Frame 8. The hand-grips upon the plane are shown. The forefinger of the right hand should be noted.

Frame 9. The position of the feet is important. They are close to the bench, in astride position. As planing is being done, the

weight of the body moves and 'heel and toe' rocking movement takes place.

Frame 10. At the commencement of the stroke the Blade is seen to be just clear of the end of the wood, the Sole being parallel to the surface being planed. The weight of the body is on the Toe of the Plane.

Frame 11. The position of the body, hands, and arms has changed: the weight is now transferred to the Heel of the Plane to prevent a rounded surface from being made. The sole is still parallel to the surface of the wood.

Frame 12. A section through the plane is shown with a shaving coming from the Escapement. The action of the Curling Iron is clearly shown. This action prevents the shavings from choking the plane.

Frame 13. If correct planing has been performed and the plane is working correctly, the shaving should be nearly the length of the wood from which it has been planed. Owing to the action of the Curling Iron and the Curvature of the Blade, the shaving will be just short of the length of the wood and just less than the width of the blade.

Frame 14. The wood is tested with a ruler or straight-edge. If planing is correct no light will be seen between wood and straight-edge.

Frame 15. Another test as to the accuracy of the work is shown. This time twisting or winding sticks are being used.

Caption: *Alternative method of holding plane for planing edge of wood.*

Frame 16. Another method of holding the plane is shown. The left hand assumes a different grip. The thumb rests on the Toe of the plane with the fingers underneath on the Sole of the plane. In this case the fingers act as a guide when narrow surfaces are being worked.

Frame 17. To test the accuracy of the work a try-square is held with its stock close to the 'face' side and its blade on the planed edge.

Caption: *THE END.*

The film strip can fill a very useful place in the way of revision after a demonstration by the instructor, followed by class practice.

If the strip is left in the projector the pupil can readily refresh his memory and rectify his faults.

Chapter VI

DISTRIBUTION

NATURALLY, there is always far more interest taken in the making of films than in their distribution. Audiences at both theatrical and non-theatrical shows rarely pause to wonder how all the films they see arrive or depart. The distribution of a film, like the milk bottle on the doorstep, is taken for granted, the public knowing little of the great organizations behind the scenes necessary to maintain this efficient service.

The story of the factual and/or educational film in Britain has largely been told in Chapter III. Here I am concerned with its distribution, and the system evolved by the Central Film Library will make a good point to start from.

In 1940 the Ministry of Information's non-theatrical organization really began to function through the library at the Imperial Institute, which became the Central Film Library. It sent projectors to public libraries undertaking to show government film programmes selected by the Films Division of the M.O.I. and arranged for the showing of certain educational films chosen in collaboration with local schools and societies. This distribution developed with astonishing rapidity under emergency conditions. The total audience reached in one year by M.O.I. films (both at non-theatrical shows and at films shown compulsorily in commercial cinemas), rose from seven millions in 1940–1 to eighteen millions in 1943–4. As more mobile projection units and projectionists became available, the number of road shows increased from 50 in September 1940 to 144 in September 1944.

The ever-increasing government output consisted of films planned and produced direct for the M.O.I.; films made through the M.O.I. for other Ministries—Agriculture, Food, Health, Transport, and so on; and suitable productions acquired by the Films Division from industrial and other sponsors, and from Allied governments. One of the most important features of this non-theatrical distribution was, and still is, that all shows were free—whether loaned as complete programmes or single selected films.

So far-reaching and successful was the non-theatrical distribution created by the Central Film Library that at the termination of hostilities it was unanimously agreed the organization should be continued, and employed for the circulation of films dealing with the numerous informational services needed during the period of reconstruction.

It is the largest single agency for the non-theatrical distribution of documentary films in this country, administered out of public funds, and operated under the auspices of the Central Office of Information. As I have explained, it grew out of the Empire Marketing Board, and the G.P.O. Film Unit, and so is very closely related to the growth of the documentary movement.

Its system of distribution may be divided into two parts. First, the central organization in London, and its regional branches in Scotland, Wales, and in the South-West, lending films to approved organizations possessing projectors. Secondly, a number of mobile units operating under the supervision of the regional film officers who organize the building up of programmes and their circulation to those organizations without projection facilities of their own.

About five thousand organizations use the Central Film Library annually: schools, universities, local authorities, factories, churches, missionary societies, hospitals, farmers' associations, groups, clubs, the services, and other government departments. Some organizations ask for single films for showing to specially picked audiences. Others borrow several films which together constitute a programme, at regular intervals, for showing to mixed audiences. All films have to be booked well in advance owing to the demand for copies. Despite wear and tear of copies, those returned very badly damaged, and delays in transit, the Library continues to meet the heavy demands made upon it, and rarely if ever fails to supply films on time.

The distribution and transportation of films is the least spectacular of all the stages involved in a production's evolution from script to screen but upon their efficiency everything depends. The Central Library not only controls a wider circuit of film libraries than any other non-theatrical distributing organization in the country, but is also the supply centre for other libraries and mobile units. An elaborate card index system records the movements of every print of every film.

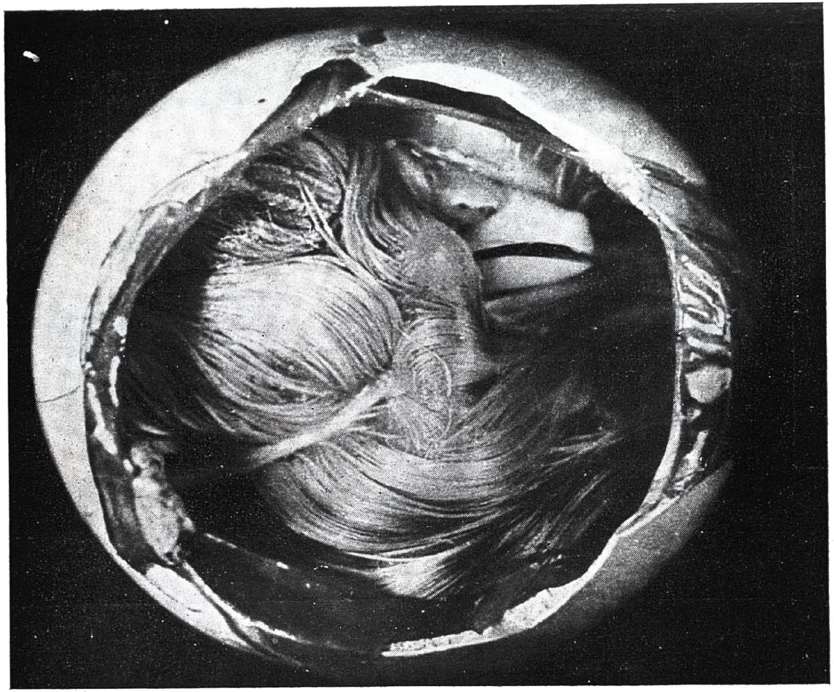
At London headquarters the test, or first, print (the show copy) of each new production is viewed, and an estimate of possible bookings made. Upon this estimate is based the number of positive prints likely to be needed, and these are ordered from a laboratory

The prints are usually despatched to hirers in cardboard containers by rail, and every returned copy is immediately examined by skilled repairers. Badly damaged or worn copies are withdrawn from circulation, and, if the subject is still in sufficient demand, replaced by new prints. The life of a print depends on the care with which it is handled by projectionists. I have known a print to be almost as good as new after a hundred showings, and I have seen a new print scratched and torn after its first showing.

On instructions from the C.O.I. the Library loans films for use abroad but otherwise distribution is confined to this country. Its range of subjects is large, varying from five-minute subjects to films playing for over an hour. Generally, prints are available both in standard film, 35-mm., in which size the majority are *produced* in the first instance, and sub-standard, 16-mm., which is obtained by *reducing* from the original 35-mm. Sub-standard versions are in the majority, of course. Many are sound films, though a number of silent subjects are always in demand.

On 1 June 1947, the Library held 998 different titles, approximately 80 per cent of which were available on 16-mm. with sound; 60 per cent on 35-mm. with sound; 18 per cent on 16-mm. silent; and 4 per cent were 35-mm. silent. In 1940, the year in which the non-theatrical system began to function on a large scale, 34,633 prints were despatched on short-term loans and by 1943 the annual despatch figure had risen to 110,194. In the eighteen months following the end of the European war there was a decrease, due to the fact that the Library was switching from war-time to peace-time requirements, and as a large number of its subjects were directly related to the war they became redundant. Also, numerous organizations which had made heavy demands on the Library whilst hostilities were in progress ceased to exist, and the volume of distribution decreased proportionately. Furthermore, the film requirements of the Services were greatly reduced, and from about this time their demands were met largely by their own internal film organizations.

In 1946, 81,540 films were despatched. During this period the stock held was being revised, out-of-date films were being replaced, and, simultaneously, new requests were being received in increasing numbers. The despatch figure rose in 1947 to 92,868. Distribution on this scale is a vast undertaking. Mr Arthur Vesselo, Secretary of the Central Film Library, in an article in the Films Division (C.O.I.) *Monthly Review* for December 1947, stated that the upward trend in the demand for subjects would continue and even increase, but

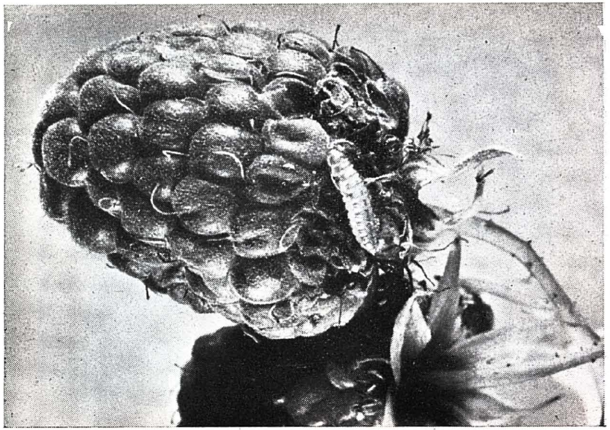


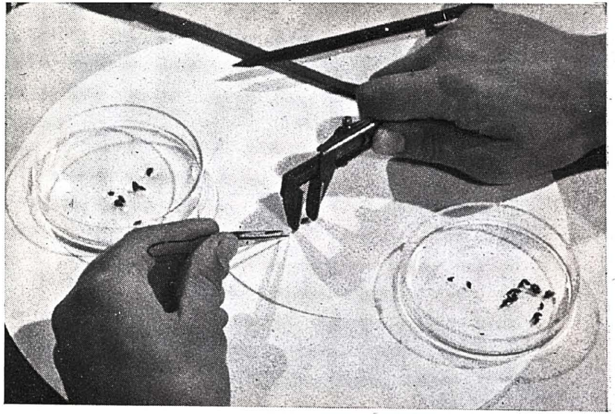
G-B Instructional Ltd

Development of the Chick, *1937. Directed by J. V. Durden Camera work by the late Percy Smith. For biological classes, 15 and over.*

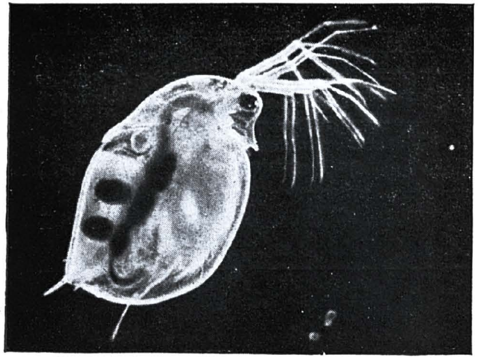
(Top right) *From the Shell film* Raspberry Beetle, *1950* (*Technicolor*). *One of a series of ten films giving the complete cycle of plant pests and diseases. Larva is here seen on damaged fruit. Directed by J. V. Durden.*

(Bottom right) Liver Fluke in Great Britain, *1949. Made for the Ministry of Agriculture by Basic Films Ltd. Written and directed by John Shearman. The main method of dealing with the liver fluke, a parasitic worm which attacks sheep, is through the destruction of snails which act as its hosts. Here the snail's rate of growth is being measured.*

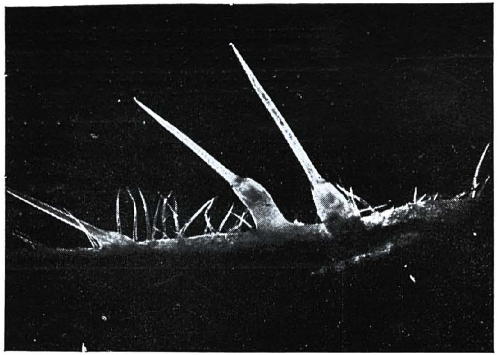




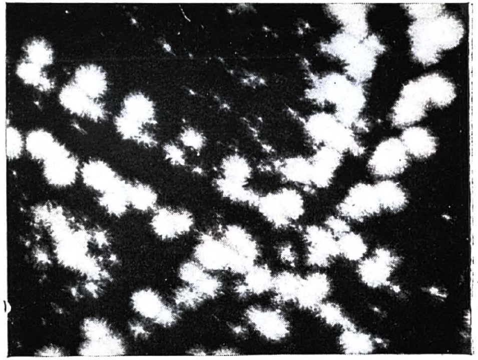
Central Office of Information



Associated British-Pathé Ltd

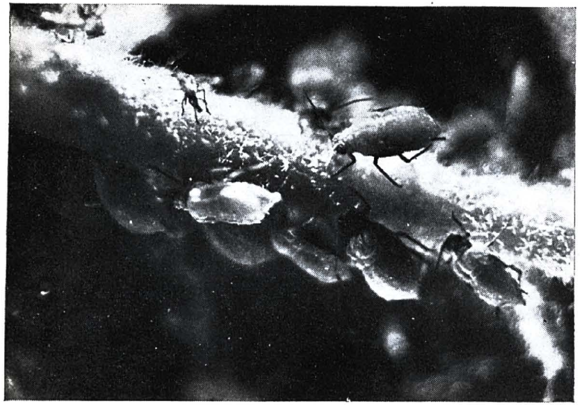


G-B Instructional Ltd



British Instructional Films Ltd

(Left) Daphnia, *1951. Re-edited scenes from a 'Secrets of Nature' film. They show the life cycle of a water flea, here seen with two eggs in a 'saddle' on its back. And two examples of the late Percy Smith's early microphotography,* Self Defence by Plants, *1936* (centre), *revealing the sting of the nettle. For botany classes.* Plants in the Pantry, *1927* (right), *revealing mould growing from a fly's footprints.*



From the Shell film Apple Aphis, *1950. Another film in the series of ten on plant pests and diseases. Aphides on the underside of an apple leaf. Directed by J. V. Durden.*

Central Office of Information

Why Glasshouse Soils are Sterilized, *1950* (*Technicolor*). *Made for Ministry of Agriculture audiences. Verticilium wilt, a disease resulting from unsterilized soil.*

that two factors stand in the way of maximum expansion by the Library. First, the shortage of projectors, and secondly, ignorance of the possibilities of the film as a teaching instrument—both being slowly overcome.

There is also the National Film Library of the British Film Institute, an advisory organization financed by the government. It is concerned with the development of film for educational purposes, and the raising of the standard of films in cinemas. The National Film Library, housing films and sections of films of historical and artistic importance is one of the Institute's most important activities, and it also publishes appraisals of current productions in a monthly film bulletin, numerous pamphlets on various aspects of film-making, biographies of eminent film-makers, and the quarterly review *Sight and Sound*.

The Institute has recently considerably expanded its activities, and now distributes a wide variety of films in addition to those from the National Film Library Lending Section (now renamed the Distribution Department) dealing chiefly with the history of the film as an art. It was felt that, in particular, a general focal point for the distribution of films of varied scientific interest was needed, and a scientific section of the Distribution Department has therefore been opened. The Institute now distributes the Scientific Film Association's collection, and, on the recommendation of the Association and of the British Universities Film Council, has added a number of scientific films to its own library. Since the Institute's aim is to supplement and not to compete with existing distribution of scientific films, it keeps closely in touch with the Central Film Library, the Educational Foundation for Visual Aids, the British Medical Association, and other interested bodies.

It was felt also that there was a gap in the supply of films on the arts, and, in co-operation with the Arts Council of Great Britain, the Institute has collected films on painting and sculpture, mainly from France and Italy. They will provide the Arts Council with a travelling road show of films on art, as well as being available to regular borrowers. It is hoped greatly to expand the section on art, and to include music and dancing.[1]

In addition to these two film libraries there are libraries owned by various large concerns unrelated to the film industry, which I mentioned earlier. Although the specialized films which these libraries offer are intended primarily for publicity, they are available, usually free of charge, to any establishments, and many of the films

[1] The British Film Institute: Members' Newsletter, January 1951.

are of great value. Such concerns as Imperial Chemical Industries (who offer visual aids in scientific and agricultural education, medical films, and special films and film strips for schools), Shell, Austin Motors, and the British Gas Council serve as examples. This last organization runs one of the largest industrial film libraries in the country, possessing (November 1948) 23 films for distribution, and at least six copies of each, whilst of such popular titles as *The Manufacture of Gas*, and *The Nation's Wealth*, there are from 24 to 60 copies in use.

One particularly interesting practice of the B.G.C., is the sending of a questionnaire to every hirer six days before the showing date asking for information about the audience—total number, and whether composed of men, women, or children. There is also a space for comments, which have proved of great value to those planning further films.

For instance, the following contrasting views were received from teachers who used 'The Transference of Heat' series of classroom films, issued by the B.G.C.

(*a*) 'An attempt to draw the class into active participation in the film by questions was novel, but not altogether successful. The essence of cinema is movement, and some of the diagrams were "post-cardy" and led to lack of interest on part of pupils. Personally, I think that the subjects can be better demonstrated with a few simple experiments by the teachers.'

(*b*) 'All three films proved of great value—just what is required for children in a Secondary Modern School since they relate in an excellent manner everyday experiences to the science. . . . I like the idea of the questions and hope you will continue to produce this kind of film.'[1]

All such information is tabulated each month for future reference.

The B.G.C. estimates that the average audience at each screening is 80, the average monthly audience for each *print* is 270, and so this would result in a large yearly total audience for the twenty-three films in circulation.

Then there are the libraries owned by such varied bodies as the Workers' Film Association, the Royal Society for the Prevention of Accidents, the Boy Scouts and Girl Guides Associations, the Catholic Film Institute, Religious Films Ltd, each and all having films of educational value to offer. Sometimes the subject-matter may be outside the ordinary school curriculum, but teaching and *general knowledge* values are high.

[1] Extracted from *Film Sponsor*, November 1948.

The Arts Enquiry, in 'The Factual Film' (1947), pointed out that some seventy film libraries in this country offer educational films, and that such a large number confuses the teacher, and often makes it difficult for him to obtain the right films, or even to know what films are available. Since then, an increase in the number of film-producing companies making educational films has further complicated the picture. The Enquiry recommended that to clear up the distribution problem for schools, the first essential should be the compilation of a national catalogue, or year book, of educational films, listing, subject by subject, all teaching films available. This recommendation had, in fact, been made some years earlier by Middlesex Teachers in their enquiry into the use of film.

The task could not be undertaken except by a national body, and the Educational Foundation for Visual Aids gave first priority to this work when it was established in 1948. A range of catalogues in six volumes has been completed, covering the whole of the curriculum of primary and secondary schools. These describe in detail every classroom teaching film available, regardless of its source. The catalogues also list and give the source of supply, but do not describe other educational films of general interest such as those which may be useful for school societies and associations. Teachers are finding the catalogues an invaluable source of information, and I am glad to say the volumes will be brought up to date at regular intervals.

The Educational Foundation has also established the Foundation Film Library which includes copies of all the films described in the catalogues, and teachers can now, for the first time, readily ascertain exactly what subjects are available, and obtain them from one source.

An important factor in the use of films in schools is, of course, the cost involved in hiring them. When a school requires a film from either the Foundation Library or a commercial library, payment must be made. The fact that in the past schools have been expected to meet the cost out of their own funds (which they cannot afford to do) has undoubtedly hindered the use of film in education. Steps are being taken to put this right. First, all films in the local libraries are purchased by local education authorities and made available to their schools without charge. Secondly, the Association of Educational Committees has proposed a scheme whereby the local authorities will contribute direct to the Foundation Film Library, and the schools can then obtain the films without charge.

If this scheme is generally adopted, schools will be able to obtain a limited number of films, generally on long loan, from the local libraries and up to sixty reels a year from the Foundation Library.

The local libraries will, in general, hold the films which are in every-day use, and the Foundation Library, holding all films, will supplement them rather in the way a Central Library for books supplements the County libraries.

There is a dearth of reliable statistics as to the number of projectors possessed by educational establishments in this country. Records have been published for the years 1937–40, but for recent years authorities hazard no more than a guess. In 1937, the number of 16-mm. projectors in educational institutions in this country totalled 539, 284 in England and Wales, and 255 in Scotland. By 1940, the figure had increased to 1,549, Scotland possessing 473. Few projectors became available between 1940–1, but from 1947–9 a rapid increase took place. By 1949, there were about 3,100 in grant-aided schools of all types and in training colleges in England and Wales. That figure does not, however, complete the picture, for it excludes private schools, universities, adult institutes, and youth organizations. The main point is that the percentage of schools equipped with projectors is small, and consequently the use of the teaching film is restricted. Nevertheless, there has been and continues to be a steady increase in the number of schools possessing equipment. The proportion in which projectors have been distributed among schools and educational establishments coming within other categories has remained more or less unchanged. In 1937, 62 per cent of projectors were in preparatory, primary, senior, and central schools; 21 per cent in secondary schools (note: figures in this and the following paragraph relate to years prior to the operation of the Education Act of 1944, and secondary is applied here only to schools of the grammar type); 9 per cent in universities and training colleges; and 8 per cent owned by local education authorities. Figures for 1940 show a fairly constant proportion, though with slight changes in favour of secondary schools and L.E.A.s—53 per cent in schools other than secondary; 27 per cent in secondary schools; 8 per cent in universities and training colleges, and 12 per cent possessed by local education authorities.

There appears to be some inequality in the distribution of projectors as between different types of schools. Most are owned by urban, senior, and secondary schools, whilst very few are possessed by junior and infant schools, or by any type of rural school. In 1938, there were about 29,225 preparatory, primary, and senior schools in England and Wales, as against 1,398 secondary schools, and yet the latter possessed about half as many projectors as the former.

The absence of projectors in most rural schools is understandable, for a great many of them possess no main electricity, without which projectors cannot be run, and so films in rural districts become possible only if a mobile projection unit can visit them. Between October and December 1939, the Scottish Film Council made a successful experiment, employing twenty projection vans to give film shows to children evacuated to remote areas, whilst rural schools in both Essex and Devon have been served by vans, too. There are drawbacks, but the method might well serve as an interim measure in isolated places until such schools are supplied with electricity, and projectors become available.

Projectors are not uniform. The majority are for 16-mm. films, the most popular of the sub-standard sizes, but some schools possess 9.5-mm., and 8-mm. projectors, whilst comparatively few have 35-mm. machines. Lists of the different types and sizes have been published by the British Film Institute but, as yet, equipment has not been standardized to enable 16-mm. productions to obtain maximum circulation. Varying types of machines have not facilitated the already difficult task of distribution, and they have presented maintenance problems.

Lack of servicing of projectors by engineers is a problem demanding immediate solution, and one all the more urgent because of shortage of equipment. Investigations show that large numbers of projectors in need of repair remain idle for considerable periods, and that a high proportion of their owners are not technically experienced, and so cannot locate faults, or know which parts need replacing. During the 1939–45 war the Ministry of Information's regional film organization included the provision of service engineers to maintain all the mobile projection units, but no similar servicing is available to-day for schools. Clearly, with the development of local library organizations throughout the country, such maintenance becomes imperative. I shall refer again to the conditioning and running of projectors in Chapter VII when dealing with presentation, and the reasons for inferior classroom projection.

The cost of good projectors is one of the reasons why a number of authorities interested in using film have decided against it. I do not propose to quote prices, for they vary and fluctuate to such a degree that quotations are soon out of date. They are often beyond the pockets of those who could make good use of them, and unless prices come down considerably, presumably by mass production becoming possible, many schools will remain without projectors. But mass production is possible only if demand is guaranteed, and

thus the circle revolves. In 1937, the proportion of projectors for showing silent films to those for sound films was 3.7 to 1. By 1940, there was a slight increase in projectors for sound films, the proportion changing to 3 to 1. The post-war development in England and Wales has, however, been strongly in favour of the sound projector, and by 1949 the number of sound projectors slightly exceeded that of silent machines.

In 1942, the British Film Institute recommended the installation in each school of one silent film projector; one epidiascope,[1] and one diascope,[1] excluding all infant departments and others with an average attendance below 100. One projector for sound films was recommended for every ten schools, the machine to be kept at the local education office, or in the regional library. On that basis the number of projectors required was estimated at 15,000 for silent films, 15,000 epidiascopes, 15,000 diascopes, and 3,500 projectors for sound films.

It should be noted that the Minister of Education at a joint meeting of the National Committee for Visual Aids in Education and the Educational Foundation for Visual Aids in December 1948, stated that 'a projector was part of the normal equipment which every school must have'. The Scottish Educational Film Association suggests that *every* school should possess a visual aids room equipped with a projector for sound films, and that *every* classroom should possess a projector for silent films. Again, the London County Council has advocated the possession of only one type of projector, capable of projecting *both* sound and silent films. Sound films run at a speed of twenty-four frames a second; silent films at sixteen frames a second. Some projectors can be adapted to both speeds.

The general problems which have arisen on the question of the provision of suitable equipment in sufficient quantity, and the methods by which the use of visual aids in teaching can be developed and expanded are being studied by the National Committee for Visual Aids in Education, and are the subject of the Report of a subcommittee published in 1947, which stressed the need for an adequate supply of reliable material in schools. The Report pointed out that local education authorities, feeling it desirable to spread available equipment over the greatest number of schools in their areas, had in the past provided a little equipment for many schools, and it

[1] A diascope projects transparent pictures, the equivalent of slides, on to a screen, and an epidiascope projects *opaque* pictures. The latter is, therefore, of great value in the classroom and lecture hall, for it enables almost any book illustration, photograph, or other pictorial matter to be enlarged and made visible to the whole audience.

had rarely been their policy to equip any one school fully. It therefore suggested that in order to obtain experience of what equipment is or will be required, certain schools in each local authority's area should be equipped with a full variety of visual apparatus for a given period, at the end of which, from the evidence provided, authorities should decide whether all or parts of such equipment could be distributed to other schools, or made available for sharing between a number. It would then also be possible to estimate how many items of equipment of each type will ultimately be needed.

Thus, the main problem facing educational film distribution is projector shortage, and the present economic situation does not facilitate supply. It is logical, however, to feel optimistic about the future, for the concentrated study and drive of the National Committee and the Educational Foundation is having marked effect. Directly related to projector supply is distribution and production, and the need for establishing a sound policy not only for the benefit of educationalists seeking to plan visual aid teaching schedules on a long-term basis, but also to rationalize the position of producers by providing them with a fairly accurate idea of what they may be called upon to produce over a given period, instead of allocating, say, an isolated education film at short notice, and then making no further demands on a production unit for perhaps many months.

Various producing concerns, anxious to develop educational film-making, yet reluctant to sponsor productions themselves whilst there is little hope of regaining costs, have been searching for alternative approaches. One is to induce industrial concerns and other large organizations to sponsor visual aids in return for the publicity and/or prestige value of being mentioned on the introductory titles, thus: 'The XWY Corporation presents . . .'. No other advertisement would be permitted, of course, and the subject-matter of all such films would be quite unrelated to the nature of the work of the sponsors.

There may prove to be some concerns interested in the idea, but at the time of writing I have no details of any such films being made. Productions of this kind should not be confused, of course, with films made by large industrial concerns which they distribute without charge to schools—the subjects usually being directly related to their own products.

In this connection a very interesting comparison can be made between the system originated by the Educational Foundation, already outlined, depending for its success upon the purchasing power of local education authorities, and the work of the Educators' Progress Service in Randolph, Wisconsin, U.S.A.

This organization publishes annually the *Educators' Guide to Free Films*, which is compiled and edited by Mary Foley Horkheimer and John W. Diffor, M.A., who is Visual Education Director of the Randolph High School. The Educational Consultant is John Guy Fowlkes, Ph.D., Dean of the School of Education, University of Wisconsin. I have the ninth edition, published in 1949, before me. It is a large book, about half an inch thick, with 284 pages describing hundreds of educational films of almost every type. These particulars are followed by a title index, a subject index, and a source and availability index. The book is prefaced by Dr Fowlkes, who writes on 'Improving the Effectiveness of Visual Materials'. Every one of the films listed is available for teaching establishments *free*, each having been sponsored by an industrial, professional, or cultural organization.

Sponsors range from such bodies as the United States Bureau of Mines, to the Esso Standard Oil Company, and Civil Aeronautics Administration. Here is an extract from a description of the Educators' Progress Service, by Charles W. Dobbertin, of the Church Department of the Audio-Visual Guide: 'Although these sponsored films do carry some advertising content, it is usually kept at a minimum in order to present a film that can be used as an effective tool of learning.'

One is reminded of the free distribution in this country of the films in the Central Film Library, mainly originating from the Central Office of Information. Few of them are educational films in the classroom sense, but the method of offering them without charge—each having been sponsored by a government department or public body, for publicity, propaganda, or prestige reasons—is in direct contrast to the plan of the Educational Foundation which seeks to make educational films *commercially worth while* in themselves, unrelated to sponsoring other than by the producers.

Whilst there is a great deal to be said for both approaches, it is obvious that, at least in this country, they could not work side by side in so far as educational films are concerned without prejudicing each other, unless, of course, all *educational* films can be channelled through one organization—in this instance, the Educational Foundation—irrespective of the sponsoring source, and all sold to local education authorities in the manner previously described. My belief is that the educational film will best succeed unsponsored by disinterested bodies, when the market created by local authorities has grown to maximum size.

It will be advisable, before leaving the subject of non-theatrical distribution to study the ramifications of the commercial industry and seek to discover the extent to which films of an educational nature penetrate into the cinema. First, then, let us examine the proportions of the entertainment side of the industry. According to a survey conducted by the U.S. Department in Washington in January 1947, there are 86,640 cinemas in the world, visited weekly by over 220 million people. The United States of America possesses nearly 19,000 of them, and the weekly attendance is about 100 million. In Europe, including Russia, there are approximately 49,000 cinemas, with a weekly attendance of 96 million. Britain has nearly 5,000 cinemas, and between 25 and 30 million people visit them every week. At the other end of the scale, there are 6,000 cinemas in the Far East, attended by 8 million a week, whilst the Middle East has only 235, with a weekly audience of half a million. Attendance in the English-speaking countries (United Kingdom, the Dominions, and the United States of America) amounts to approximately 135 millions—60 per cent of the world total.

Statistics published in the *Board of Trade Journal* as the result of a survey in October and December 1946, showed that the average cinema audience is composed mainly of people under twenty-five, and that women predominate. Housewives, clerical and manual workers, and people employed in the distributive trades are in the majority, the professional classes accounting for only 5 per cent of the total audience, being occasional patrons who *select* their films. In this country, about 4½ million schoolchildren go to cinemas every week, whilst in the United States the weekly child audience is 11 million. Many children go two or three times a week; a few go once a month, whilst only a very few never go at all.

In addition to being the world's most popular entertainment, film exerts a powerful influence on the opinions and attitudes of the majority, and just as radio can convey the spoken word to millions simultaneously, and the press can circulate the written word to almost every part of a nation by a system of circulation infinitely more effective than can be employed for the distribution of literature, so film can release a subject in hundreds of cinemas simultaneously.

Obviously, with such wide coverage, and so powerful a grip on the public mind (more powerful than the influence either of radio or press), film could be a tremendous educative force, but rarely does it fulfil such a function, the industry declaring that its purpose is to provide entertainment—an escape—and nothing more. The

impact of ceaseless film programmes on the mind is to quicken its reaction to superficialities, and dull it to essentials. I suggest it will be discovered by educationalists in due course (if they have not already realized the fact) that the child who is *not* an habitual cinema-goer learns more readily from classroom films than the child who attends cinemas regularly.

How then can the cinema programme be improved in a way which would satisfy those interested in the enlightenment of humanity? Only by patiently seeking to develop within *the next generation* a critical approach towards film, and an understanding of production values, which can best be done in classroom and study circle. Of tremendous help in this respect is the fact that for the first time in history a *film-educated* generation is growing up. It remains true, of course, that much good done in the school is undone in the commercial cinema, but as film plays an increasingly important part in the classroom, the scales should slowly turn. There is a need for more carefully planned courses in film appreciation to enable young people to learn how to *see through* films, instead of being content merely to look at them. Their acute powers of observation need redirecting—away from the trivial. Many educational films are already making pupils conscious of the factual possibilities which the screen presents, and through this discovery may arise in many dissatisfaction at the inadequacy of studio artifice.

Generally speaking, the cinema programme is designed to divert one from education into the field of amusement. Nevertheless, there is a widespread desire on the part of the public for a return of the programme composed of a feature film designed to entertain, accompanied by several factual films designed to inform. Providing, therefore, the entertainment part of a programme does not have a deleterious effect, and the informational items are not too heavily coated with sugar, the combination of 'Learn a little, Laugh a lot' cannot be criticized. One does not wish or expect to see the cinema becoming a mammoth classroom for millions of 'backward' pupils, or the classroom turned into a place of entertainment. Though the two will rarely if ever meet, they are interlocked, and one aim of the educationalist should be to see that the rising generation, *via the classroom*, approaches the cinema with fine critical faculties, and that going to the pictures becomes less of a habit and more of an event which is the result of selecting programmes.

Chapter VII

PRESENTATION

THE *Report on the Provision of Apparatus for Schools*, published by the National Committee for Visual Aids in Education in November 1947, made it clear that whilst some local education authorities had taken all possible steps to accumulate data regarding film equipment needs, there was insufficient knowledge over the country as a whole as to school requirements. Since then, the position has been somewhat clarified, and though apparatus is still not forthcoming in sufficient quantities, a number of local authorities now know requirements in their areas, many schools having listed what they possess, and what they still need. However, despite questionnaires and surveys by the Educational Foundation, the present number of projectors in schools, whether in use or standing idle, is not yet definitely known. Incidentally, it is interesting to learn what a large school considers necessary under *ideal* conditions, the following requirements being more or less typical of the *maximum* needs of most schools. First, projection apparatus for both sound and silent films, for strips and slides, in the school hall, mainly for background work, general lectures, and meetings (it has been suggested that such projection should be so arranged as to serve two adjacent rooms); three portable projectors for everyday classroom work, and solid though easily movable benches or stands on which to fix them; epidiascopes in sufficient numbers to avoid one class having to borrow constantly from another; and daylight screens, which are widely called for, it being frequently stated that unless films and strips can be shown without blacking out or darkening the classroom they are often more of a hindrance than an aid. It is said the blacked-out room shuts off the teacher from the pupils, whilst the preparations involved are extremely distracting and time-wasting. Moreover, fresh air is kept out.

There is now wide recognition of the need for the regular maintenance of all equipment by experts, and the wisdom of making sure such servicing is available, and also that spare parts can be obtained at short notice. Certain essential spares are usually provided with

new projectors—lamps, fuses, belts—but unless all other parts are available, and direct contact made with maintenance engineers in advance, hold-ups will certainly occur in the classroom.

It is, of course, essential that both films and projectors should be correctly handled. Only when experienced should a teacher project a film to a class. This presents a problem which will naturally persist for a long time, first because of the shortage of projectors, and, secondly, because it by no means follows that a person who is an able teacher can therefore become an expert projectionist. Some people are drawn to mechanical things; others cannot stand the sight of them. Both types may be admirable teachers. It is hardly fair to expect every teacher who employs, or wishes to employ, visual aids, to become technically competent to project them, though surveys have shown that only a small percentage are unable, for various reasons, to project films unaided.

The point to stress is that *perfect* projection is essential, and that it involves both a patient study of equipment, and a certain flair for presentation. In contrast to the timid person, reluctant to handle projectors, is the over-confident individual who, often with more enthusiasm than experience, can damage a machine, and probably the film, too, sometimes beyond repair. Projection, whether in cinema or classroom, is a skilled job, a fact which has only recently dawned on a lot of people since they have discovered, with 16-mm. machines, how the whole quality of a film can be lost when it is inexpertly shown.

The presentation of a 16-mm. classroom film in some ways demands even more skill than 35-mm. projection, because cinemas are built for showing films to advantage, and most classrooms are not. In the latter, acoustics may be poor, and the shape or dimensions of the room unsuitable. The floor is flat instead of sloping towards the screen to enable people behind to see over the heads of those in front. In other words, the show is improvised, consequently maximum results are needed from the projector. To-day, it is rare to see poor projection in a cinema, but it does sometimes occur, and a production is ruined, or partially so, by a dull or uneven light, inattention to focus, clumsy change-overs so that the ends and beginnings of reels are clipped short, or by careless control of volume, which may be too low to be audible, or so loud as to be deafening.

If one could have an opportunity of seeing the same film, and, moreover, the *same copy*, in several cinemas, the difference in quality would be revealing. In two first-class halls there might be very little difference unless the projectionist in one was careless, though to the

sensitive ear there there would almost certainly be some variation in the quality of the sound, but if the comparison could be made between a first-class and a very second-rate cinema, one would learn just how much a film does depend upon both the projectionist and good equipment.

I have some experience of this. Only a few months ago I had to introduce at some widely differing cinemas a film I had made. At one, the copy was shown to perfection—clear, steady light; correctly modulated sound; perfectly timed change-overs. At another, where the *same copy* was shown, the commentator was almost inaudible, the picture lacked light. It trembled. Often it was out of focus. It was also damaged, sprocket holes being torn away in various places, and there was an ugly scratch down the centre of two of the reels. It would have been difficult to recognize the film as the same being shown in those two cinemas. The important point is that the *average cinema-goer blames the film* and/or its makers, and rarely the projection, be it the fault of man or machine. Now if that can and does happen in professional cinemas, think of the possible results in classrooms and lecture halls.

There is a further reason why *maximum* projection results are essential in the field of 16-mm.; often there is less brilliance and clarity, both in picture and sound, than with 35-mm. cinema projection. High intensity arcs are used in cinemas, whereas 16-mm. machines are equipped with lamps ranging from 100 watt to 1,000 watt, which are adequate when the distance from projector to screen is reasonably short, or rather, when the machine is accurately placed in accordance with the focal length of the lens which governs the distance, and of course, the size of the picture. If too long a throw is arranged, loss of quality will be marked.

I have seen first-class 16-mm. projection in most uninspiring-looking halls, and, having seen the same films in their original 35-mm. size, I have been able to compare results. In some instances, I have not noticed any appreciable drop in quality. Unfortunately, in the majority of cases, 16-mm. films are not seen to full advantage, and it is discouraging to production companies to know their work (when produced in 35-mm. and reduced to 16-mm.) is rarely if ever seen in the former size, the quality of which is, or should be, first class. I have, on occasions, arranged for both the 35-mm. and the 16-mm. versions of the *same* subject to be projected without a pause between them, and the difference has been immediately apparent.

Poor 16-mm. results may be due to the light, the screen, or both, and poor audibility either to the bad acoustics of the hall, the installa-

tion and/or position of the speaker, or, maybe, to the quality of the print. This latter point brings me to a vital factor—the important part played by the processing laboratory, about which too little is known. Often the laboratory is blamed for supplying a poor print, when the real trouble may be due to faulty projection. Sometimes, a poor print may be the best result obtainable because of the inferior quality of the 35-mm. version from which it has been reduced. These are technical points of the greatest importance, and it is necessary for all concerned with non-theatrical projection to learn a great deal more about the work of the laboratory.

The development of negatives and prints and the making of the prints themselves involves apparatus, which, with the raising of the expected standard of work, has grown ever more costly and elaborate, so that the concentration of these facilities into a relatively small number of fairly large firms has been inevitable.

The rapid expansion in the use of 16-mm. film and the raising of the standard consequent upon it becoming a commercial instead of an amateur medium, have led the laboratories to concentrate upon the improvement of 16-mm. printing and developing equipment, and to offer a service which rivals that available on 35-mm. film.

From the laboratories' angle, 16-mm. film presents problems of special difficulty. The standard laid down for the sound stock, with perforations down one side only, makes the film very difficult to handle in a developing machine, and easily scratched on the machines, as one edge only may be held. In 35-mm. machines, the film is supported by both edges and the centre part does not touch any part of the machines, as all rollers, etc., are cut out to leave a clearance. This difficulty is purely internal but it does mean there is always a higher proportion of reprints needed when processing 16-mm. film, which makes the cost proportionately higher than that of 35-mm.

The second problem is the variety of means by which 16-mm. films may be made. 35-mm. films are all made by a single method: negative film is exposed in the camera, developed to a negative, from which a rush print is made on a contact printing machine, and sent to the producer, who cuts and edits it in order to obtain his 'cutting copy'. At this stage picture and sound are printed on two separate pieces of film. If any part is damaged in editing, another print of that part is easily made. When the producer is satisfied that the film is assembled to the best advantage, he can then instruct the laboratory to make 'opticals'. These consist of fades, dissolves, wipes, superimposition, or any kind of montage effect that may be needed,

and are made on a most elaborate precision printer of the projection or optical type which, from specially made low contrast, fine-grain positives, called masters, prints duplicate negatives incorporating the desired effect. When the cutting copy is complete and the desired sound has been recorded, the negative of the picture is cut and joined up to match the cutting copy. This is easily done, for the negative has numbers along its edge, printed on by the manufacturers. These 'edge numbers' are printed through on to the rush prints and enable negative and print to be matched without trouble. The picture and sound negatives are then printed on to the same piece of film to produce the 'married' print which is normally projected.

Sixteen-millimetre films may be made by exactly the same process —the 'neg-pos', as it is called. However, the difficulties are, first, that the final print has to be threaded the wrong way round on the projector; secondly, that only a limited range of optical effects are available on 16-mm., there being no full 16-mm. optical printer. Dissolves, fades, and wipes may be made in a special printer, and fades may also be made 'chemically' by dipping the end, or beginning, of the negative into a solution which dissolves the silver away. Until recently, much further trouble was caused by the absence of edge numbers, which meant that the negative had to be matched by the pictures to the cutting copy to cut it—a slow and difficult process often involving damage to the negative due to excessive handling. However, one leading stock manufacturer has introduced edge-numbered 16-mm. negative film, and doubtless others will follow suit. This should give a considerable impetus to this method of working.

Many 16-mm. users prefer to expose reversal materials in the camera. These materials are processed by a special method which causes the original camera material to yield a positive, suitable for projection. It is claimed that reversal materials are less grainy and give a sharper picture than 'neg-pos'. However, there is a temptation to edit the original camera material, which always leads to damage and sometimes to complete loss of material.

When working by this method, the camera original should be treated with as much care as a negative, and certainly not projected; instead, a copy should be obtained to work upon. Unfortunately, this leads to some delay. The same troubles arise as in 'neg-pos', due to lack of an optical printer, and of edge numbers. To make prints for release it is possible to use reversal material again and so obtain a positive copy from the positive original. But this again gives prints which are the wrong way round and is also rather expensive. It is

usual to print the original on a contact printer to give a negative and then to make the release prints from this. This gives prints the right way round and the bulk order is cheap, but it involves the cost of an extra film.

The disadvantages described above have led many commercial film-makers to produce on 35-mm. for reduction to 16-mm. This gives the extra ease and precision of the standard cameras and equipment and makes elaborate opticals possible. The final prints are then made on reduction printers, which reduce the 35-mm. image optically to 16-mm. Reduction printers are slower than contact and require more adjustment, so that the prints are normally rather more expensive than contact. For this reason sometimes a 'reduction dupe' is made, i.e. a 16-mm. negative printed from a 35-mm. master, and the release prints made from it by contact. This is particularly desirable if a large number of prints is wanted quickly.

The introduction of reversal 16-mm. film was really responsible for the third problem of 16-mm. film, the standard print position. The original film exposed in the camera has its emulsion side towards the lens of the camera. If this film is processed to a positive by reversal, it must similarly be laced with its emulsion side towards the lens of the projector to get the picture the right way round on the screen. If, however, the camera original is processed to a negative, a print is made by placing the positive film with its emulsion in contact with the negative so that the print must be laced in the projector with the emulsion side towards the lamp. Thus reversal and 'neg-pos' prints inevitably go opposite ways round in the projector.

When the American Standards Association first laid down a standard for 16-mm. positives, they were forced to choose between these alternatives. Wisely or not, they chose the position given by the reversal process; probably they were influenced by the fact that 16-mm. is used largely by amateurs. This original decision has never been altered, and has also been adopted by the British Standards Institute. Thus a standard 16-mm. print is laced with the emulsion towards the lens. Such a print cannot be produced from 16-mm. originals without a reversal stage, or without serious loss of definition due to printing with the celluloid side of the negative in contact with the emulsion side of the positive stock. In planning a production, a clear-cut decision must be made between 'neg-pos' and reversal as, owing to differing emulsion positions, such films cannot be joined together without focus trouble in the projector and loss of sharpness in printing.

National Film Library

L'Hippocampe ('The Sea Horse'), *1934. Made by Jean Painlevé. An ideal teaching film combining scientific fact with poetic loveliness.*

National Film Library

Monsieur Vincent, *1949. Directed by Maurice Cloche. A scene from the great French biographical film of the life of St Vincent de Paul, with Pierre Fresnay in the title role. A commercially released film of religious educational value.*

Sovexportfilm

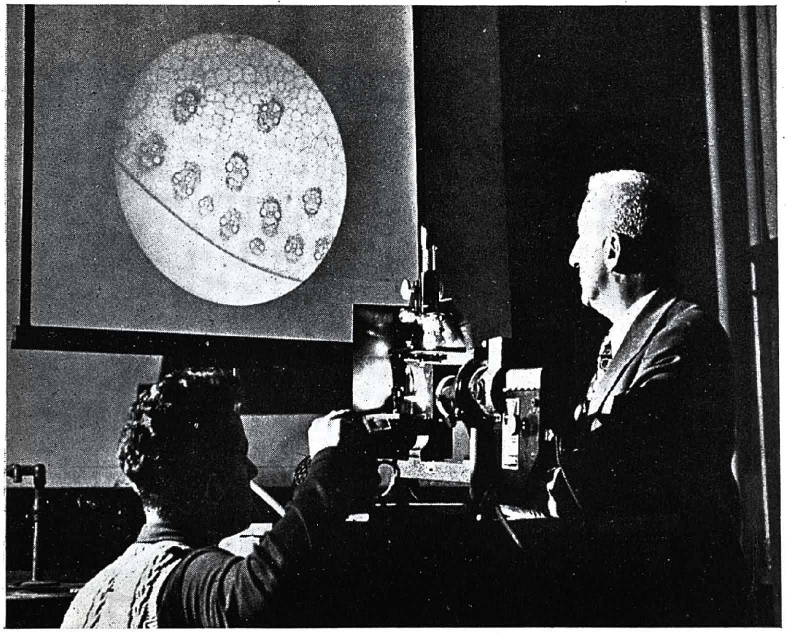
Land of Toys, *1940. A puppet film made for children, directed by S. Obratzov and produced by Mosfilm Studio.*

Sovexportfilm

Glory to Moscow, *1947. Directed by J. Pozelsky and produced by Moscow Central Studio and Documentary Films. A factual survey of the Russian capital.*

National Film Library

Natur und Tecknik. *From one of the composite illustrations issued by UFA to explain the themes of their educational films. This compares natural and mechanical movement.*



U.S.A. Information Service

A film strip being projected to a class of biology students at an American college.

National Film Board of Canada

Stanley Takes a Trip, *a Canadian film cartoon for very young children.*

National Film Board of Canada

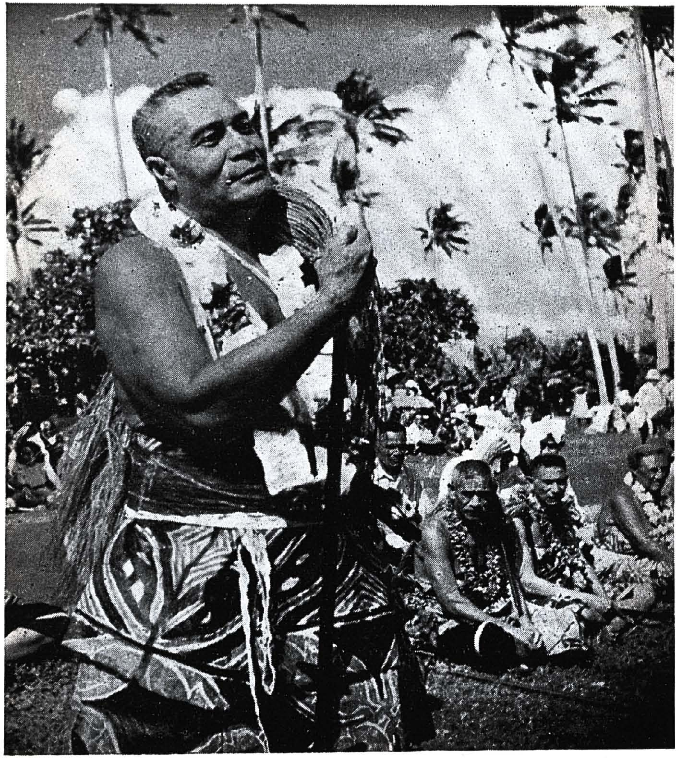
How to Build an Igloo. *A colour film about the Eskimos of Canada's Eastern Arctic.*

Australian News Information Bureau

School in the Mailbox. *A documentary made at the request of UNESCO to explain the system of education by correspondence in the remoter areas of Australia.*

Australian News Information Bureau

No Strangers Here, *showing how thousands of displaced persons are being assimilated into the Australian community. Here a Polish brickworker makes friends with a factory foreman.*



New Zealand Government

Samoa. *A recent documentary film about the history of the Maori race made in New Zealand.*

New Zealand Government

Journey for Three. *A scene showing a rescue from a crevasse, from another recent documentary film made in New Zealand.*

When sound was introduced, the position became more complicated. Since the film now has perforations on one side, it can only be threaded one way round on the printing machines or projectors. At first there were two competing standards for the track position—the American, or Society of Motion Picture Engineers (S.M.P.E.) standard in which the track is on the far side as the film is laced from the right-hand side of the projector, and the German, Deutsche Industrialisches Normen (D.I.N.) standard in which the track is on the near side—and projectors were available in this country for both standards. Difficulties continue, however, for it must be remembered that a print can only be laced one way round in the projector and that the standard S.M.P.E. print laces emulsion towards lens. Now a print made from an original 16-mm. *negative* must be laced the other way round. This can be done on the printer by starting to print the picture from the end, and all original 16-mm. negatives have to be printed in this way. The problem arises with the sound track. The sound negative has only one row of perforations and therefore can only be printed one way, unless it is printed through the celluloid and the loss of quality accepted. Thus there are two possible types of 16-mm. sound negative, S.M.P.E. and D.I.N. and neither can satisfactorily be used to give the other type of print. When making the original recording it is essential to be clear as to which type of negative is required. All prints which are to be laced on S.M.P.E. projectors with emulsion towards the light require D.I.N. negatives.

Another possible source of trouble is the desire to use prints for rear projection, either for mobile cinema vans or in the classroom. Unless the image is projected via a mirror or prism, it will be the wrong way round on the screen if it is laced normally. Since the print can be laced one way only this means that special D.I.N. prints must be made for rear projection, these being laced emulsion to lamp. Unfortunately, as noted above, such a print cannot be made satisfactorily from a 16-mm. S.M.P.E. sound negative.

Where prints are made by reduction from 35-mm. negatives these troubles are removed, as the negatives can be printed either way round and the lens adjusted to give sharp focus. Where both S.M.P.E. and D.I.N. prints are required of a subject for both front and rear projection, either a 35-mm. negative must be recorded or else separate S.M.P.E. and D.I.N. 16-mm. sound tracks.

The point has been treated in detail because the greatest confusion exists in the minds of some 16-mm. users and even producers, and it is a matter which can lead to exasperation and misunderstanding.

Conditions under which 35-mm. prints are projected are, as I explained earlier, sometimes far from satisfactory, but they are infinitely better than those under which many 16-mm. prints are projected. The power of the lamp in the projector is often low and in any case is unlikely to exceed 1,000 watts. A very well-adjusted optical system is required in any case to concentrate the light from the lamp on to the frame of film in the gate, as naturally light which does not pass through the gate does not reach the screen and only heats the gate uselessly. Often much of the light output is wasted in this way. There is a very common tendency to throw too big a picture, which results in the light being too weak to illuminate the screen adequately. My personal opinion is that a well-adjusted projector with a 750 watt lamp in a well-darkened room should not be used to give a picture larger than 5 feet wide.

The laboratory naturally tries to give the best picture for these conditions and, as a result, prints have to be held to a very closely judged density. The lightest satisfactory print is aimed at, but any fluctuation in the process which throws the print a little too light will mean 'glassy' faces and empty high lights. Good projectors will take darker prints than poor ones, and until the general level of 16-mm. projection is improved, the laboratory will tend to sacrifice those having good projection to those having bad.

The trouble is often aggravated by rooms which are inadequately darkened. The deplorable effect of stray light on picture quality is often not appreciated. Stray light, by lifting the shadows and submerging shadow detail, flattens and degrades the entire picture and makes the print look lifeless and dull. This means that many producers and users require very light prints, as they have not enough light to penetrate a darker one. It is well known that a richer print is always obtained by taking it a little darker and, especially, that high-light detail is very much improved so that faces show much better modelling and roundness. I will return to the question of projection later in this chapter.

Sound on 16-mm. film presents some quite special difficulties. The reproducing of sound partly depends on what length of film is available to record each wave. This in turn depends on the speed of travel of the film through the projector. 35-mm. film travels eighteen inches per second but 16-mm. film travels only two-fifths of this speed, i.e. 7·2 inches per second. Thus only two-fifths of the length of film is available on 16-mm. to record any note. This means that it is as difficult to record a 4,000-cycle note on 16-mm. as it is to record a 10,000 cycle note on 35-mm. The 35-mm. trade has decided

that it is not worth recording anything over 8,000 cycles, as too much noise and distortion results. This would correspond to only 3,200 cycles on 16-mm.

Now the intelligibility of speech and the quality of music depend on the adequate reproduction of the higher frequencies; and cutting of all frequencies above 3,200 cycles would make the sound almost useless. In practice, every effort is made to keep frequencies up to 6,000 cycles but it must be remembered that this is pushing the whole process to the limit. Slight trouble in recording, printing, or projecting, can easily lead to bad trouble on 16-mm. whereas it would not be noticed on 35-mm. In discussing 16-mm. sound it must never be forgotten that as the film travels two and a half times slower, it is two and a half times more difficult to obtain adequate sound. Some projectors are badly designed, cheaply made, and poorly maintained. They give shows with inadequate volume in halls of poor acoustics. The good quality of much 16-mm. sound is a wonderful tribute to not only the stock manufacturer and the projector makers, but also the laboratory.

Inside the laboratory, 16-mm. sound has two special difficulties. First, there is a serious tendency to loss of 'top' at all stages in 16-mm. work, and so a track to give the best sound on 16-mm. should be recorded with extra top up to 6,000 cycles. This is called '16-mm. compensation'. All 16-mm. negatives are recorded in this way, but not 35-mm. negatives, as they are expected to give 35-mm. prints. If a picture is planned mainly for 16-mm. release but made on 35-mm. the track should be recorded with 16-mm. compensation, but naturally this cannot be done on feature films when the main release is on 35-mm. On such films some loss of sound quality is inevitable.

Secondly, the proportions of a 16-mm. sound track are different from those of a 35-mm. track. The 16-mm. track is two-fifths the length of 35-mm. but is sixty-five thousandths of an inch wide as against eighty-five thousandths. This means that a normal lens cannot be used for sound reduction printers for printing 16-mm. sound tracks from 35-mm. negatives as the length must be reduced more than the width. Suitable optical systems can be designed but there is always apt to be some loss of definition in printing 16-mm. tracks by reduction.

A further point about reduction printing of any kind is that the use of the optical system shows up small scratches, abrasions, or 'digs' on the negative which would not show in a contact print. On the sound track this means that more background noise must be expected on a reduction job.

With all the above difficulties borne in mind, it remains the object of the laboratory to supply prints of consistently acceptable quality in the minimum time, and to enable the laboratories' problems to be understood, an account of the processes involved may be helpful.

The original negative material which has been exposed in the camera is sent in to be developed. This is done on continuous developing machines. In these the film passes in an endless strip over sprockets, or rollers, driven from a take-off through all the baths required and a drying cabinet supplied with warm dust-free air, and is rolled up on a take-up. As the roll of film on the take-off comes to an end, a new roll of film is joined on so that the machine is never unlaced, spacing or 'junk' film being used when needed to keep the machine loaded. Since negative is panchromatic, the work must be done in a very dim light and the greatest possible care is taken to avoid all scratches or marks on it. Thus the machines normally run rather slowly.

The control of development is done by two methods. The activity of the developing and fixing baths is maintained by circulating the baths through the developing tanks and out into a ballast tank in which the temperature of the bath is controlled and recorded. In the ballast tank, replenisher solution is added to make up for the chemicals consumed in use, and filtering is often employed to keep the bath free from sludge. The amount of replenisher added is determined partly by experience but is controlled in the long run by periodic chemical analysis of the bath and by frequent checks of its alkalinity, or 'pH'. These chemical tests are, comparatively, a novelty in the laboratory, but are proving of value in securing a consistent result.

The chemical checks provide a bath of constant activity, but the film itself varies and also minor variations in the baths are to be expected. Thus each roll of negative is controlled by means of test exposures made on an instrument known as a sensitometer. This produces an accurately standardized series of exposures, and from measurements of the densities produced, it can be ensured that the negative is developed to a standard degree of contrast, or, more technically, 'gamma'. The fixing bath is also controlled chemically to ensure constant activity and the maintenance of its hardening properties.

When the negative has been developed and dried, it is taken to the cutting-room, where any sections of which the producer does not require a print are removed. The negative is then sent to the

grader. His work is to decide how strong a light is required on the printing machine to give the best possible print of that particular negative. The greater the exposure given to any scene, the denser will that scene be in the print. A dense negative requires a stronger light in printing than a thinner one. However, the density desired in the final print will also vary according to the nature and purpose of the scene, and grading, which is done by eye, is a job calling for continuous attention and a high degree of experience and judgment. The grader's decision as to lights is recorded either on a card, the negative being nicked to indicate the changes from scene to scene, or on a template which controls the amount of light, or may even be marked on the negative itself by the position of two soft metal clips which operate switches as the film goes through the printer.

After grading, the negative is next thoroughly cleaned to get rid of any dust which has been picked up in handling, and then given to the printing-room. The printing machines used are continuous, the positive stock running in contact with the negative over a printing aperture. Since the two move together past the printing light there is no blurring. The strength of the printing light is controlled in accordance with the grader's decision, either automatically or by the printer operator. In designing all developing or printing machines, and in handling, the greatest care is taken to see that nothing shall touch the back or front of the film at any stage except in the perforation area. This is where the absence of a second row of sprocket holes in 16-mm. sound stock presents much difficulty and is one of the main reasons why 16-mm. film is always more liable to damage.

After printing, the positive is developed on machines similar to those used for the negative, except that they run at a higher speed, the developing bath being different and designed to give the higher contrast required in the print. The finished print is dusted; it has scrap film joined to its ends to protect it, and is then projected by the grader to see that the print is free from faults and is of acceptable quality.

If any defects, spots, blobs, or scratches are seen in the print they are carefully checked against the negative to find out if the fault is due to a defect in the negative or in the print. If the fault is in the print, a fresh print is made. The finished print is then returned to the producer with a report on the state of the negative, pointing out any defects.

Sound negative is handled similarly in all respects, and prints of sound are provided on a separate film. If required, the laboratory

will cut the sound and picture prints so that they match, i.e. the prints are 'synchronized' so that they can be projected together on dual (double-headed) projectors.

The making of 'opticals', to which I referred earlier, is done by a special staff on the optical printer, and may take a considerable time. The output of a machine is very limited and great care is needed at all stages. Therefore this department is easily swamped if several producers require opticals at the same time, and delay is often experienced. It is very desirable to inform the laboratory well in advance when such work is required and to send it in as early as possible.

When sound and picture negatives have been cut and matched, they are sent over to the grader who decides, scene by scene, at what light to print them. His object is always to adjust variations in the negative and produce an even print. Then the two negatives are cleaned and the first combined or 'married' print is made. This is screened by the grader, sometimes two or three times if sections are difficult, and the grading is corrected so that the second print will be more even than the first. A first print will hardly ever be the best that a negative can give, so that if a first-class show copy is required at least two, and preferably three, copies should be ordered at once.

Once the first print has been taken and approved by the producer, the laboratory's next job is the provision of release copies, but before these are taken the question of protection of the negative must be considered. With the greatest care in the world it can never be guaranteed that a negative going through machines many times will not be damaged. In due course the perforations will wear, leading to picture unsteadiness, or fine scratches will occur even if a join does not catch and tear the negative. Thus, means must be provided to replace the negative if damaged. For this purpose a low contrast, fine-grain print called a 'master' or 'lavender' is made and carefully checked. From this, if needed, duplicate negatives, or 'dupes', can be made. Where 16-mm. prints are made by reduction they should always be printed from a dupe to preserve the original negative. Dupes of 16-mm. negatives always show a slight loss of definition, so that 16-mm. contact prints are usually printed from the original negative, but before release prints are made a master should always be taken as a safeguard.

Bulk printing is now started and here the test of the laboratory is its ability to deliver consistent prints. To ensure this all stock is carefully tested, all printers must be balanced, with daily or twice

daily checks, and the developing baths on the positive machines must be maintained by replenishment, chemical analysis, and by half-hourly sensitometric checks. The finished prints must be inspected for defects before they are passed out of the laboratory. As 16-mm. film is so small, the only really satisfactory method is to project all prints before they leave the laboratory, though sometimes they are carefully examined by winding them slowly over an inspection light. Finally, all have to be packed, labelled, and despatched to the right place at the right time.

Another service is the storage of negatives, and in a large laboratory this involves storing hundreds of millions of feet of valuable material, all highly inflammable, and all so arranged as to be located quickly, which calls for considerable organization.

The laboratory is often blamed when 16-mm. prints are projected and found to be, say, practically invisible or inaudible, whereas the fault frequently lies in the projector, or in the way it is handled. Of course, faulty prints are made from time to time, but, in my long experience, I should say poor quality, especially in the 16-mm. field, can most usually be traced to projectors in poor condition, inexpert projectionists, and halls which are acoustically unsuitable, or not completely darkened.

Laboratories are often given insufficient time to work on a film, and if they are rushed they cannot easily do justice to the numerous processes. That is why I would say in concluding this little tribute to the least heard of, yet most essential team of technicians, do not be too ready to blame the laboratory if pictures are dark, or sound is indistinct.

HINTS ON 16-MM. PROJECTION

First, study the size of the hall or classroom, and particularly the length of it in relation to the probable distance between projector and screen. If projection is to be *permanent* in a room, this distance should be *noted* before purchasing a projector. Also, the size of the screen in relation to the size of the room is of extreme importance, for its dimensions govern the focal length of the projector lens required. It will be seen in the following table that a projector lens of 2-inch focal length gives a picture of small dimensions at a short distance, and a very large one at long distances between lens and screen. At this point the reader is advised to study the chart facing page 184 before reading on.

If these measurements guide the purchasing of equipment and a

screen is selected which gives a 'comfortable' picture for a particular sized room, it is possible to select a lens of suitable focal length to give the size of picture required at a determined throw. If the type of projector selected has its take-up arm at the rear, three to four feet will be needed to allow clearance from the rear of the stand to the wall behind to make room for the arm taking a 1,600 foot take-up reel.

Screen size. A hall that is 70 ft. or over in length will require an 8-ft. wide screen. One which is from 20 ft. to 70 ft. in length, a 6-ft. screen, and under 20 ft. a 4 ft. 6 in. screen. The above table shows the focal length of the lens required to fill the size of the screen used. It is a mistake to give an oversized picture in a small room, for the effect is overpowering.

Projection lighting. For a hall of over 40 ft. in length, one needs a projector with a 750 watt lamp as standard lighting, but capable of taking a 1,000 watt lamp. When projecting colour films good lighting is essential, for the colour absorbs at least 25 per cent of the light, and in some instances up to 50 per cent.

Acoustics. Where these are definitely bad it is advisable to seek technical advice, but if this is not available one should try a few experiments with a sounding board, or a blanket suspended above and slightly in front of the speaker. It should be remembered, however, that some rooms react badly when tested whilst empty, but acoustics improve considerably when they are full of people.

Black-out. It is imperative to ensure that the room can be properly blacked out. Streaks of strong light shining round windows will not allow justice to be done to any programme, and can ruin the presentation of a colour film. It is worth time, trouble, and money to purchase really opaque material and have it fitted to the windows.

The Screen. I consider the beaded and white matt to be the best screen surfaces. The beaded screen gives the most brilliant reproduction, but it is more suitable in a narrow room, for as soon as one moves either to left or right of it the brilliance of the picture begins to fall off and those sitting on the flanks of the rows of seats will have a poor view. For a wide room, therefore, the matt surfaced screen is the best, and although it does not give such a brilliant picture, the quality does not lessen when viewed from the sides. *But*

PROJECTED PICTURE SIZES OBTAINED WITH VARIOUS PROJECTION LENSES

16-mm. Projector	*Distance in feet from Screen to Film*															
Lens Focal Length	8	10	12	15	20	25	30	35	40	45	50	60	75	100	125	150
	WIDTH AND HEIGHT OF PICTURE															
⅜″	4′ 9″ 3′ 6″	5′ 11″ 4′ 5″	7′ 2″ 5′ 4″	9′ 0″ 6′ 8″	12′ 0″ 8′ 11″	— —	— —	— —		Upper Dimension is Width of Picture						
¾″	0′ 11″ 2′ 11″	4′ 11″ 3′ 8″	5′ 11″ 4′ 5″	7′ 6″ 5′ 7″	9′ 11″ 7′ 5″	12′ 6″ 9′ 3″	— —	— —		Lower Dimension is Height of Picture						
1″	2′ 11″ 2′ 2″	3′ 8″ 2′ 9″	4′ 5″ 3′ 4″	5′ 7″ 4′ 2″	7′ 5″ 5′ 7″	9′ 4″ 6′ 11″	11′ 3″ 8′ 4″	13′ 1″ 9′ 9″	— —	— —	— —	— —	— —	— —	— —	— —
1½″	1′ 11″ 1′ 5″	2′ 5″ 1′ 10″	2′ 11″ 2′ 2″	3′ 8″ 2′ 9″	4′ 11″ 3′ 8″	6′ 2″ 4′ 7″	7′ 6″ 5′ 7″	8′ 9″ 6′ 6″	10′ 0″ 7′ 5″	11′ 3″ 8′ 4″	12′ 6″ 9′ 4″	— —	— —	— —	— —	— —
2″	— —	1′ 10″ 1′ 4″	2′ 2″ 1′ 8″	2′ 9″ 2′ 1″	3′ 8″ 2′ 9″	4′ 8″ 3′ 5″	5′ 7″ 4′ 2″	6′ 6″ 4′ 10″	7′ 5″ 5′ 7″	8′ 5″ 6′ 3″	9′ 4″ 6′ 11″	11′ 3″ 8′ 4″	14′ 0″ 10′ 5″	18′ 9″ 13′ 11″	23′ 5″ 17′ 6″	28′ 2″ 21′ 0″
2½″	— —	1′ 5″ 1′ 1″	1′ 9″ 1′ 3″	2′ 2″ 1′ 8″	2′ 11″ 2′ 2″	3′ 8″ 2′ 9″	4′ 5″ 3′ 4″	5′ 3″ 3′ 11″	5′ 11″ 4′ 5″	6′ 8″ 5′ 0″	7′ 5″ 5′ 7″	9′ 0″ 6′ 8″	11′ 3″ 8′ 4″	15′ 0″ 11′ 2″	18′ 9″ 13′ 11″	22′ 6″ 16′ 9″
3″	— —	— —	— —	— —	— —	3′ 1″ 2′ 3″	3′ 8″ 2′ 9″	4′ 4″ 3′ 3″	4′ 11″ 3′ 8″	5′ 7″ 4′ 2″	6′ 2″ 4′ 7″	7′ 5″ 5′ 7″	9′ 4″ 6′ 11″	12′ 6″ 9′ 3″	15′ 7″ 11′ 7″	18′ 9″ 14′ 0″
3½″	— —	— —	— —	— —	— —	2′ 7″ 1′ 11″	3′ 2″ 2′ 4″	3′ 8″ 2′ 9″	4′ 3″ 3′ 2″	4′ 9″ 3′ 7″	5′ 4″ 3′ 11″	6′ 5″ 4′ 9″	8′ 0″ 5′ 11″	10′ 8″ 7′ 11″	13′ 4″ 9′ 11″	16′ 1″ 12′ 0″
4″	— —	— —	— —	— —	— —	2′ 3″ 1′ 8″	2′ 9″ 2′ 1″	3′ 3″ 2′ 5″	3′ 8″ 2′ 9″	4′ 2″ 3′ 1″	4′ 8″ 3′ 5″	5′ 7″ 4′ 2″	7′ 0″ 5′ 2″	9′ 4″ 6′ 11″	11′ 8″ 8′ 8″	14′ 0″ 10′ 5″

the screen must be opaque. Any screen through which light can penetrate is of no use for front projection.

When a screen has to be moved from place to place, the tripod type is recommended. It is compact, easy to carry, and the tripod can be erected anywhere to stand on the floor, without needing a table or other support, which is necessary for the box screen.

Discover the most suitable distance between projector and screen, and remember that a clear bright picture is necessary. To compensate, the projector can be taken halfway nearer to the screen, but in that case, the picture will be much reduced in size (see table). For example, with a lens of 2½ in. focal length the width of the picture at 50 ft. from the screen is 7 ft. 5 in., but at half the distance (25 ft.), the picture is only 3 ft. 8 in. Hence the need to purchase a projector with a lamp of not less than 750 watt as its lighting power, for this is capable of giving a good colour picture without moving nearer to the screen.

When a platform is available, it is always an advantage to erect the screen upon it, provided that the front rows of seats are not too near it. When possible, the screen should be placed at a convenient height to allow people in the middle and back rows to obtain a comfortable view without needing to peer round the heads of those in front.

Projector and Stand. If these are to be permanent fixtures, the stand should be made firm, with the table top about 6 ft. high, and a platform for the operator to stand on. If a balcony is available it provides the most suitable position, as downward projection gives the best results. A portable stand should be sturdy, made of metal, and easily erected.

Having erected the screen, pace out the distance from it to where the projector should be, according to the focal length of the lens and the size of the screen, and erect the stand. Place the projector upon it, open it, and place the spool arms in position. Then place the resistance or transformer in a convenient position and, if this is not known, find out where the power supply point is (sometimes it is at the opposite end of the hall, and so an extra length of mains cable should always be carried which can be trailed along the hall in the same manner as the speaker cable). Connect the mains cable to it, and before connecting to the transformer ascertain the correct voltage of the supply and make the necessary adjustment to it. Should the mains voltage be in between the markings on the transformer, do not under-adjust it or the resistance, but adjust it to the *one above*,

i.e., if the mains supply is 215 volts and the markings are 200 volts and the next one 220 volts, make the adjustment to 220 volts. To under-adjust the transformer is to shorten the life of the lamp.

The mains cable should then be connected to the transformer or resistance. It is assumed that the mains supply is known to be A.C. or D.C.—*on no account connect a transformer to D.C. supply*, or it will burn out; the majority of sound projectors are made to operate on A.C. supply only. Most projectors can be used as silent on D.C. through a *resistance*, *without connecting the amplifier* which produces the sound. The instructions for linking up projector to transformer and speaker to projector are given in manufacturers' booklets and need no explanation here.

Placing the Speaker. When the speaker is to be placed in a permanent position, it should be put on a shelf immediately below the centre of the screen so that the top of it just clears the bottom edge. A black curtain of thin material can be hung down in front. A speaker can only be placed in this position provided its height is above the heads of the audience when seated, except in a small room of 20 ft. or less in length. In the case of a screen that cannot be fixed at a height above people's heads, it would be better to fix the speaker *by the side* of the screen *with its centre on a level* with the centre of the screen.

When a portable screen is used and can be placed on a platform, stand the speaker on a chair or stool immediately below it. If no platform is available, stand the speaker on a table to one side of the hall, turned slightly to face towards the centre of the hall. When fixed in position, run out the speaker cable, but never along the floor if it can possibly be avoided. Trail it along the sides of the hall, fixing it to window catches, or pass it over beams. This ensures no one tripping over it, or pulling it apart when two lengths have been joined together. To avoid terminals parting, always make a reef knot near the two ends before coupling together. When the cable cannot be trailed above the floor, and there is a carpet down the centre gangway, it can be laid under this. If the cable has to be run round the hall it is often a problem to keep it above people's heads when it reaches the point of connection to the projector, which is usually near the entrance. It is wise, therefore, to have a good length of string in one's spares box, as this will be useful to tie to one end of the cable, and a bunch of keys or other small weight, to toss over a beam or bar. Then one can haul on the string and raise the cable to a convenient height and fix it.

When the cable has been plugged into the amplifier and a final check has been made that all leads are properly connected, switch on the mains supply, and the pilot lamp which lights immediately the current is coming through. Should it fail to light, check the mains to transformer cable, and the transformer to projector leads to see if these are in order. Examine the main supply points; see that the plug is right home, and making proper contact, and at the same time, push the switch over to the right position for *ON*. If there are no 'On' and 'Off' markings, try the switch the opposite way, and if there is no result find out where the fuse box is, and see if the fuses are intact. Sometimes these have been blown, and the fuse wire has not been replaced by the previous user.

Should this not prove successful, disconnect the mains lead, and attach a bayonet plug adaptor and plug into the lighting circuit. (Before removing a lamp, switch it on to see it is working, then switch off, remove the lamp, and insert the lead plug.) When doing this, test the strength of the springiness of the contact points in the lamp holder. If they are firm they will make a good contact. At the same time, examine the position of the points in the holder to see they are in the right position to come into contact with the flat brass contacts in the adaptor when inserted. Sometimes these are not in correct register but this can easily be remedied. Using the lamp holder as a source of main supply is not to be recommended and should not be done if power points are available; it should never be used for a prolonged showing of two or three hours. The lamp holder is made only to take up to 5 amps, and fuses for lighting are often only 5 amps, whereas sound and some silent 16-mm. projectors take from 8 to 11 amps. Prolonged showing would therefore weaken the small brass springs in the lamp holder, weaken the contact, and sometimes blow the fuse.

When satisfied that the electric supply is in order, switch on projector and lamp to check correct register with the screen. Focus the lens until the frame of the gate shows a clear-cut edge on the screen. When this is done switch lamp and projector off, and thread up the film. It has a long lead before the title is reached. Do not run this length off and commence to thread it through the gate near the title. If this is done, and the film has not been threaded correctly, when switched on it may run off the sprocket teeth and be damaged. Run off only sufficient length of the lead to enable threading through to the take-up reel, and when threading is completed, check it over and then make the first test by turning the inching knob and seeing that the sprocket holes are properly engaged by the sprocket teeth.

Then switch on the projector, watching a second or two to ensure that the film is running smoothly. If anything should be amiss, switch off instantly, and if any damage has been done it will be only to the lead, which can be replaced, and not to the image on the film. This illustrates how valuable it is to have a *long lead* to a film, and to make use of it.

When everything is in order, switch off the projector and switch on the amplifier. Allow it to warm up and then switch the projector on, and make the final focusing adjustment *of the image and volume tone*. Finally, test the sound by walking from one side of the hall to the other. If the acoustics are bad, they can sometimes be improved by turning the speaker slightly to one side or the other, or tilting it forward. If there is *no sound*, and the usual routine check with cable connections has been made, there are a few unusual things which can account for the trouble:

1. The exciter lamp, although alight, may have moved out of alignment with the pin-point condenser, so that no light is reaching the sound track. This can easily be adjusted. (This can also cause sound distortion.)

2. The glass tube of the photo-electric cell may have become loose in its bakelite base.

3. The solder may have parted from the wire of one of the points in the connection plug of the speaker cable.

When at last everything is in order, stop the projector, switch into reverse and back to the beginning, ready to commence. Switch the projector off and be sure to put the reverse switch over to the forward position; it is infuriating to start and find film running completely out before noticing it is in reverse, so that it has to be re-threaded.

Once started, *never* leave the projector. Stand by it the whole time and do not relax attention, particularly when there has not been time to examine the film before showing it, for there may be one or two enlarged sprocket holes overlooked before the copy left the Library. When these go through the projector gate they will often cause the loop below the gate to be taken up, and there will be just a streak of blurred lines running up the screen. A beginner should stop the projector and re-make the loop. With experience, one can re-form the loop sufficiently without stopping the projector, but it must be done with great care or the film will break. The following method should not be attempted until one is thoroughly acquainted with the projector.

Carry a pencil that is smooth and rounded, to avoid scratching the

film, and if there is enough space left in the bottom loop carefully insert it between the loop and the gate and pull the film slightly downward to re-form the loop. Do not pull it down too far or the top loop will be lost. It is wise, when threading the film at the beginning, to make a slightly larger loop at the top so that when the bottom loop is lost one has this little extra when re-making it. If the bottom loop is completely lost and the film is rubbing close to the metal of the gate, *stop the projector immediately*, for the film is probably being scratched. Some projectors have a trip trigger that will stop the bottom loop taking up, or automatically stop the projector when this happens.

Moving the Gate Frame. Sometimes, the frame register moves slightly during the showing, resulting in a thin light line appearing across the top or bottom of the screen. If it has moved more than a fraction, a double picture near the top or bottom of the screen becomes visible. The frame can be re-adjusted without switching off and without distracting the audience if one has thoroughly mastered the projector, but if this is done too hurriedly one can easily create trouble by turning the adjustment the wrong way, making half the picture shoot over the top or bottom of the screen!

I would advise the mobile projectionist, when dismantling at the end of a show, temporarily to disconnect the transformer or resistance cables from the projector, and then proceed to dismantle the screen before anything else. The reason is that sometimes people wish to help, and usually they make for the screen and, not knowing how to handle it, can easily crease or crack its surface. Then, disconnect the speaker cable and roll it up towards the projector, by which time most of the audience will have left the hall. Then connect the transformer or resistance cable to the projector and proceed to rewind the films. Next, switch off the main supply and disconnect the mains cable, and roll up and disconnect the remaining cables, leaving the dismantling of the projector until last. Thus the projection lamp has time to cool down, which helps to prolong its life. If a projector is moved from its stand immediately it is switched off the lamp is very hot and the vibration caused can damage it.

The following spares are essential for projection:

Two additional projection lamps.
Two exciter lamps, and two pilot lamps.
One complete set of valves.
One photo-electric cell.
One take-up belt, and one forward belt.

Two screwdrivers (not *all* metal ones), one small, the other large enough to remove amplifier screws.

Adhesive tape, spare fuse wire of 5, 10 and 15 amps, and a small pair of pliers.

One 1,600 ft., one 800 ft., and one 400 ft., reel, complete with cans (these protect the reels from becoming bent). A show may consist of three films (*a*) 1,600 ft.; (*b*) 800 ft.; (*c*) 400 ft. and the order of showing may be *c*, *a*, *b*. The reel supplied with the projector is for 1,600 ft., and if this is put on to take up the 400 ft., at the end one is left with an empty 400 ft. reel to take the next film of 1,600 ft.! It would be more than inconvenient to keep the audience waiting whilst the 400 ft. is rewound back on to its 400 ft. reel again. Hence the need to carry all sizes of reels.

Mobile projection needs the following additional spares:

3-in. projection lens for various sized halls.

Extra 50 ft. of speaker cable, making a total of 100 ft.

Extra 50 ft. of mains cable (100 ft. *may* be wanted).

A length of twine.

Various plugs: two-pin 10 amp, two-pin 15 amp, and the same with three pins, plus a 5 amp. Also a bayonet adaptor to fit a lamp holder for use when no *power* supply is available.

A time-saving method is to carry these ready for use as follows: Purchase 4 ft. of cable, and seven two-pin 5 amp sockets, and two two-pin 5 amp plugs.

Take one of the two-pin plugs and fix it on to the end of the mains cable. Then fix the other two-pin top plug to one end of the spare mains cable, and a two-pin socket to the opposite end, and the mains cables are ready for use.

There are now six two-pin sockets left. Cut the 4 ft. of cable into six equal lengths, fix a two-pin socket to each, and then fix each of the two-pin top 10 and 15 amp. plugs and the three pin 5, 10 and 15 amp plugs and the bayonet adaptor to these respective lengths.

One will then be equipped to meet any emergency.

Modern 16-mm. projectors vary considerably, and the most obvious way to obtain knowledge of them is to study the instructions given with each machine. A great deal depends upon the correct threading up or loading of a film into the projector, and the operations should be repeated again and again, either with the small practice reel usually supplied by the makers, or with a roll of surplus film. The journey of a film through all projectors is from the top take-off spool, down over a sprocket wheel, through the gate in which the film moves intermittently downwards, over another sprocket wheel,

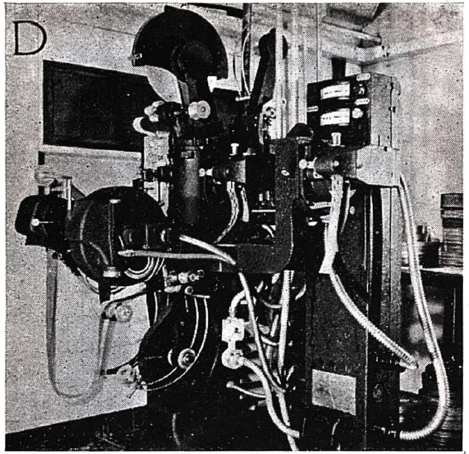
and so on to the second spool, which takes up the film. The size of the loops which need to be formed on either side of the gate is important, for they prevent undue tension, which can so very easily break or tear the film.

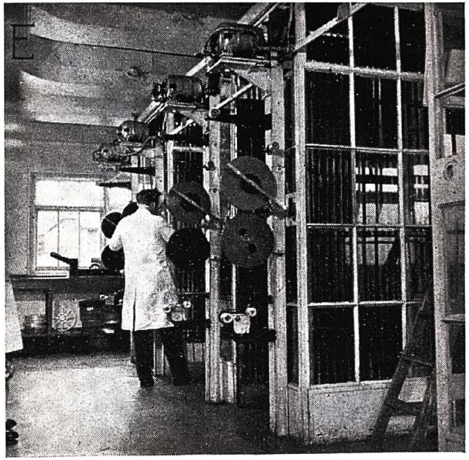
Sound projectors are far heavier (both in weight and cost) than silent machines, and the threading of the film takes longer. The sound track on the side of the film passes round a sound drum, and here a tiny slit of light meets it; the light is interrupted by the variations on the track. The intensity of this light varies correspondingly, and falls on to a photo-electric cell which transforms it into varying electric current. This is amplified and reaches our ears through the speaker placed near the screen (in cinemas, behind it).

Although silent 16-mm. films can be run on sound projectors, sound films cannot be run on silent projectors, for a simple reason. A silent film has sprocket holes or perforations down both sides (similar to 35-mm.), but the sound film has sprocket holes down one side only, and if run over the two sets of teeth in a silent machine, the second set would tear up the film on the side without perforations.

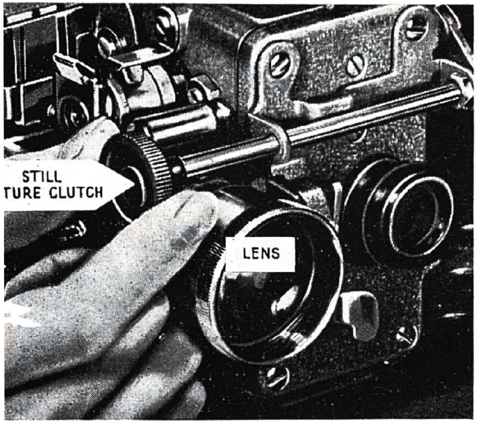
The placing of the audience is important. No one should sit on the extreme right or left of a screen for, from these positions, the pictures appear distorted. Also, if space permits, it is wise to keep the front row a reasonable distance from the screen, say two or three times its length, for being too near also creates distortion, and is an uncomfortable viewing position. The classroom which has a permanent screen (covered when not in use) and a projector in a fixed position, is fortunate, but this is rarely possible.

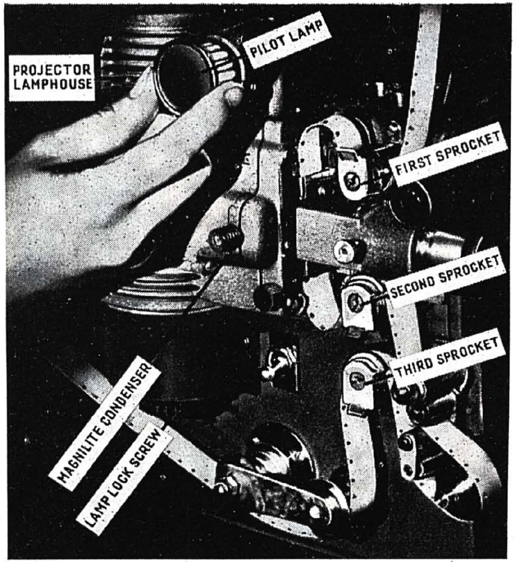
Many teachers have expressed the desire to be able to stop a film at certain points so that single frames can be studied, as in a film strip. Also, they consider that the contents of a film, so divided into short lengths, are easier to remember than when it is shown continuously from beginning to end. There is a device fitted to a few projectors enabling the film to be stopped, but it is not general, and I believe it can damage the print unless handled with care. Whilst agreeing that there is need to subdivide a film, I do not think the solution is to be found in seeking to stop it at certain points. This can be distracting, and the film would not be seen to advantage, for it was not produced to be presented in such a way. To meet the need, some educational subjects are now being planned and made in short self-contained sections, which, if desired, can also be run continuously. After each section has been projected the teacher has an opportunity to recapitulate the argument.

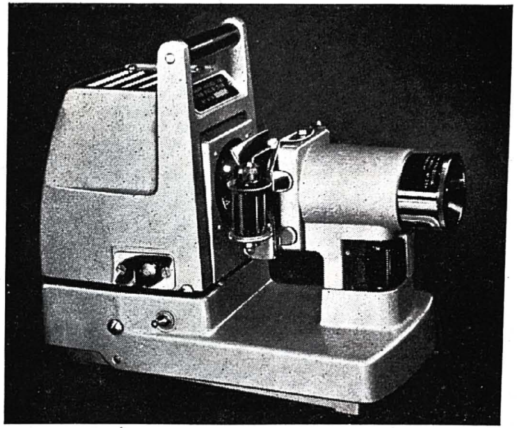




Photographed especially for this book by the Kay Film Printing Company Ltd







eft) *The still picture clutch arrests film movement and enables a single frame to remain on the screen until the clutch is released.* (Centre) *The entire film-threading process, is along a clearly visible threading path monitored by exclusive 'Safe-Lock' sprockets. The pilot light permits re-threading without turning up auditorium lights.* (Right) *A modern filmstrip projector, the Kershaw Model 250.*

G-B Equipments Ltd

When projecting very brief films, usually supplementary subjects lasting just a minute or two, and illustrating single processes or operations, the value of natural sound is at once apparent, for these short sequences need not carry verbal descriptions, since they are explained before or after projection by the teacher. Such short lengths should be shown several times. When action is repetitive, the continuous loop film is, of course, the best form of illustration.

It takes fifteen minutes to project 400 feet of 16-mm. film at *silent* speed, and eleven minutes for the same length of film at sound speed. Most educational films are in single-reel lengths, and so the delays caused in changing spools do not often arise in the classroom. Some spools take only 400 feet; others (as explained earlier) can take 800 feet and 1,600 feet.

For further technical details on 16-mm. projection I recommend a study of Mr Cecil A. Hill's book, *Ciné-Film Projection*, and his *Projectionists' Fault-Finding Chart*, both published by the Fountain Press.

As we have learnt, schemes are afoot to train teachers in the handling of all this equipment, and certain educational authorities now run classes for the purpose. One even decided to withhold equipment from schools unless or until at least one teacher on each staff was experienced in handling it. The first course organized in a teachers' training college in association with the National Committee for Visual Aids was held in April 1949, at the North-Western Polytechnic, London. It consisted of lectures, discussions, and film shows, and was attended by 120 students completing their training as teachers of technical subjects.

Briefly, then, unless teachers are given opportunities to prepare in advance for the projection of a film or films, and unless such films are shown to the best advantage, visual aids can be very troublesome. In view, however, of their high teaching value, all schemes designed to improve their presentation (educationally and mechanically) are most urgently needed. It is abundantly clear that apart from the necessity for teachers to acquire skill in projection, films should be made available to them so that they can run them through *before* they are needed in the classroom. As a result of the establishment of film libraries by local education authorities via the National Foundation, and an increase in the number of prints of subjects, it is anticipated this will become possible.

Chapter VIII

THE TEACHER AND THE FILM: A SYMPOSIUM OF OPINIONS

IT IS CLEAR that every educational film programme must ultimately depend for success on the whole-hearted co-operation of teachers, and the opinion is held in some quarters that lack of interest on their part in the past has been one of the reasons for the slow and somewhat haphazard development of classroom films in this country. It has been said that a large number have regarded the medium with some suspicion, seeming unable to dissociate its use in the classroom from its appearance in the cinema. Others have viewed it as a threat to the security of their positions, whilst there are some machine-shy teachers, reluctant to handle projectors. It is certainly true that until recently comparatively few teachers have been ready to acknowledge the potentialities of film, and fewer still have been sufficiently enthusiastic to exploit it in the cause of education, though they might well reply that the spasmodic output of unsuitable teaching films in the past, and lack of equipment, have not justified serious attention being given to the medium.

Whatever the reasons, indifference or antagonism has been discernible from infant school to university levels, but the campaign now being carried on by the Educational Foundation for Visual Aids for the production of better classroom films, improved distribution facilities, and more and more projectors, is encouraging teachers to become interested in all aspects of the teaching film, and schemes now afoot to train teachers in the handling and projection of films and film strips, and even in production will further help development.

Prior to the last war, the principal responsibility for stimulating the interest of teachers in visual aids was left to the British Film Institute, which was also concerned with arranging instructional courses, whilst the Ministry of Education organized a few film schools and, in 1937, published a pamphlet on 'Optical Aids'. The courses or schools arranged by the Institute in different parts of the country were in collaboration with the Educational Handwork

Association, at which lectures, demonstrations, and exhibitions of selected educational films were given. But attendances were small, and relatively few teachers were affected.

As we have learnt, film displays and lectures for local education authorities and teachers were arranged during the early war years, whilst useful work was also being done by the Visual Education Centre and the Film Council in the south-west, operating from Exeter.

However, no training in the use of films for teaching purposes was generally available, and teachers' training colleges were noticeably backward in this respect. This was partly due, of course, to lack of suitable equipment. Indeed, a *Report on the Training of Teachers and Youth Leaders*, published by the Government in 1944 (H.M.S.O.), stated that nearly 60 per cent of training colleges were without projectors.

To-day, largely owing to the continued enthusiasm of the pioneers mentioned in Chapter III and, recently, to the energetic campaigning of the National Committee and the Educational Foundation, interest and activity are rapidly increasing at all types of educational establishments; the formation of teachers' film groups is being discussed, and a Film Council has been set up by the universities. In addition, the planning of film programmes to suit teachers' requirements, by the five panels of the National Committee previously described, will remove a major obstacle to the wide use of classroom films.

Mr W. G. Moore, B.Sc., of Bishopshalt School, Middlesex, and educational film critic for *The Schoolmaster*, and *Look and Listen*, has said: 'The use of a film has often involved a great deal of preliminary work from the teacher, owing to the necessity for using a normal classroom for projection. Not only has the room to be prepared, but much time is often wasted while the teacher tries to obtain information about the film he is going to show. Often this is not available, and little help can be obtained from the title. Unless the film is good, all this inconvenience can hardly be justified, and teachers are justifiably discouraged when the film turns out to be, as it so often is, second rate.' The programme of the National Committee comprising films which have been recommended by educationalists themselves, will do much to rectify this, and make it worthwhile for teachers to devote time to the planning and presentation of films.

To what extent do teachers consider film will form part of the curriculum, and what in their opinion constitutes a good teaching

film? Opportunity has been afforded, during the writing of this book, for the author to obtain the views of a number of teachers experienced in the use of visual aids, and these provide an indication of teaching requirements to-day.

Teachers are agreed that film can fulfil a valuable function and the general opinion is that it has a clearly defined use. 'It should be used', says Mr David Casson, B.A., of the George Spicer Secondary School, Enfield, 'to provide concrete personal experience not otherwise obtainable, and it should codify or expand such experience.'

A similar point was made by Mr Goldsmith, H.M.I. for Visual Aids in Education. 'The Film', he says, 'is, of its very nature, an instructional medium, and instruction is a very different matter from educational growth. The valuable classroom film should stimulate first-hand observation, thereby guarding against the danger of allowing the children to be mere passive sponges, soaking up the information it presents without properly considering its implications. A good educational film should ask questions, without providing too ready answers. It should lead to discussion, rather than present potted information. In a few isolated instances, as, for example, in the case of the production on *Atomic Physics*, a film can take the place of the teacher, but, as a general rule, it should be used as a final rounding-off of the teaching of a subject, rather than as the chief method of instruction. Above all, it must not have a mere hypnotic influence, but must inspire thought and discussion among the children, or it will not fulfil its true educational purpose.'

'In all cases', states Major C. F. Gerrard, of Lymington Secondary Boys' School, 'films should be used as an aid to teaching, and not to supplant the teacher.'

This opinion is typical of the views of the majority of teachers, who say it is a valuable adjunct, when used with discretion to supplement the lesson, to provide concrete experience, and to give background to a subject.

Mr C. Gibson, Chairman of the Hornsey Teachers' Visual Aid Group, says: 'Properly interwoven with the curriculum, films can complete a child's educational background and increase his practical knowledge of adult life; can efficiently supplement or, in some cases, supersede visits to museums, art galleries, theatres, factories, the countryside, and other places visited by classes; can direct attention to the most important aspects of a subject, and can explain, by means of commentary, animated diagram, numerical or graphical statistics, realizing thereby a more complete understanding of the material facts.'

Of some thirty teachers who assisted in the compilation of this chapter, twenty-six definitely asserted the value of the film in the teaching of backward children, and an interesting point is made in this connection by Mr W. G. Moore. 'It is probably true to say', he states, 'that the non-academic child, B—D Streams,[1] gains most from films. The A Stream child can usually absorb as much, if not more, from a textbook; his imagination is fertile enough not to need the assistance of visual images.' His point would appear to express a large body of teaching opinion, and there is little doubt of the value of films for teaching more backward children. It can be reasonably assumed, therefore, that classroom films will be largely used in our secondary schools, which now fall into four groups: *The secondary grammar*, corresponding to the old high or secondary school; *secondary central* for children of intelligence just under that of pupils of the grammar type; *secondary modern* for more backward children age-groups eleven to fifteen; and *secondary technical*—instructing boys and girls of thirteen in specific trades.

Throughout, opinion seems unanimous that teachers should guard against using film solely for its own sake, and that pupils must never be allowed to become sluggish through having too many ideas presented as accomplished facts. They should continue to be guided to use their powers of conjuring up pictures mentally. 'It is one essential to promote interest', comments Major Gerrard, 'but quite another matter to provide mere amusement.' This point of view is common to teachers from infant school to university level, and was clearly stated by G. Kitson-Clarke, of Trinity, Cambridge, in his lecture to delegates attending the Second Congress of the International Scientific Film Association, London, 1948.

In the past, teachers have naturally found it difficult to evaluate films from a technical angle, even though they have had a clear idea of what the finished product should contain. Hitherto, they have frequently complained that certain details should have been included or excluded during the making of a film, little realizing that this may have been technically impossible. But as knowledge of actual production increases, they will be able to make practical suggestions, and the right combination of producer and film-trained educational adviser will result in fully acceptable classroom films.

Whatever type or size of film stock employed, teachers are unani-

[1]
A Stream	the intelligent child.
B Stream	the medium-intelligent child.
C Stream	the backward child.
D Stream	the very backward child.

mous in demanding that photographic quality should be of the finest. Photographically beyond reproach a film should illustrate plainly and without a sense of strain what is essential. Teachers are emphatic that educational requirements should be paramount, and never subordinated to a display of technical virtuosity.

In this connection, Mr W. G. Moore made the following point. 'A documentary', he said, 'very rarely makes a good educational film. It tends to be too discursive, and its employment of such devices as the flashback, and its preoccupation with artistic photography tend to make it of little value for classroom use.'

In general, opinion stresses the paramount need for close observance of educational requirements, emphasizing that photography should be clear and simple, throwing into bold relief the facts to be taught. In educational films, irrelevances of all types must be eschewed, and treatment should be plain and precise. This must also apply to the introduction of such cinematic devices as slow-motion, ultra-rapid motion, and micro-photography. The teacher should always preface the showing of a film containing such abnormal effects by explaining they are being used to make certain facts clear. For example, children are often highly amused and distracted at the sight of plants growing before their eyes, and of normal processes being slowed down, simply because they were not told to expect such unusual sights. Similarly, a close-up of a part of an object should be preceded or followed by long and/or medium shots of the whole object to show the particular part in relation to its surroundings, to establish its natural *size*.

Tempo is a vital matter which has not always received full attention. An educational film needs to make its points at exactly the speed at which they can be understood by children of the specific age and ability group for whom it has been produced. Tempo necessarily varies with different age and ability ranges, and evaluation of teaching films should always take this into consideration. With few exceptions, a slow tempo is desirable for almost all groups.

The most suitable length for a teaching film is the subject of much discussion. Whilst many considerations govern length, no film is welcomed if unduly long, for it will fail to hold the pupils' interest. Apart from production problems, since the normal lesson period even in a grammar type school rarely exceeds forty-five minutes, a film, if it is to fulfil its proper function as a teaching aid, cannot be very long.

Mr W. G. Moore states that an ideal running time for seniors is probably between ten and fifteen minutes, and for juniors, between

five and ten minutes, and he further points to the extreme dearth of films suitable for juniors. Mr Moore's opinion would seem to be general. Mr W. Bullivant, of the Stoneleigh West Central Primary School, and member of the Surrey Schools Visual Aid Committee, suggests a running time of between three to ten minutes, save in the case of such specialized films as *Atomic Physics*, and others dealing with advanced technical subjects. Mr G. Phillipo, B.A., of Salisbury Road Junior Mixed School, Kilburn, is expressing the view of many when he states that most films in present use are over-long. A mass of material on the screen defeats the whole purpose of the educational film. 'There is', he comments, 'a natural tendency to "get through" a film, however long, once it is in the projector, although this practice may well result in mental indigestion among the pupils.'

This applies both to films and film strips. In the case of the latter, Mr Phillipo is of the opinion that the showing of some three or four carefully selected pictures may be more valuable than running through an entire strip. The main purposes of the educational film —to supplement, illustrate, and elaborate—should be closely borne in mind in any consideration of its proposed running time.

Until now, black and white films have predominated, but it is clear that colour will eventually play a large part in classroom films, and the criterion should be whether it will render a film more effective. Is this or that a subject which can be covered adequately without colour? Colour is always an added *attraction*, but most teachers agree it should never be demanded or used for that reason alone.

The age-group for which an educational film is intended may well determine whether colour should be used. (It has to be remembered that, at present, financial as well as technical difficulties form obstacles to any large colour production programme.) Films made for the infant school, for example, lend themselves to colour treatment, and the Infant Panel of the National Committee for Visual Aids was emphatic that colour films are desirable for small children. Miss M. M. Lightfoot, of the Stonebridge Central Primary Schools, girls' department, who is particularly interested in colour photography, rightly states that when price considerations allow, and when it is technically possible to make many colour prints from a master copy, almost all film strips used in schools should be 'truthfully coloured'. And few will quarrel with Mr W. Bullivant's statement that colour will become essential for certain types of classroom films, particularly those concerned with natural history.

One of the most discussed and important questions of all con-

cerns the relative values of sound and silent films. On this subject, teachers hold clear-cut, and sometimes divergent, views. Opinion ranges from decided preference for sound, to the view, forcibly expressed by Mr C. Dennis Pegge, of the British Universities Films Council, that for general teaching purposes the silent production is eminently more suitable.

From a survey of opinions, it appears that many sound films have commentaries that are far from meeting educational requirements. If the film is to fulfil its purpose, both the phrasing and the speaking of a commentary must be such that a child can easily understand it. The language must be adapted to the age and ability range for which the film is devised. Many visually excellent films have been unsuitable for teaching purposes because the verbal descriptions were not written and/or spoken clearly enough for pupils to follow. Despite the pains taken by producer and adviser, the commentary may be verbose, or spoken too quickly or indistinctly.

When sound is used the general opinion among teachers is that a commentary should be slow and sparse. 'A good teaching film', says Mr Bullivant, 'should speak for itself, and speech should be employed only where it is absolutely necessary. A plethora of commentary tends to distract attention, or to bewilder children completely.' A further point deprecates what Mr Bullivant calls 'a running battle between the commentator and the musical background', and most teachers regard the introduction of music as not only unnecessary but as a distraction which tends to introduce the 'entertainment atmosphere' of the cinema into the classroom—an atmosphere which is anathema to the serious teacher.

The general opinion is that a musical background is entirely out of place in classroom films; even a musical introduction accompanying titles is to be avoided.

Mr B. J. Hobbs, of Wykeham School, states that 'A full commentary tends to "blot out" the personality of the teacher, with detrimental effect'. He advances the suggestion that more films should be made with dialogue sequences instead of commentaries, suggesting that conversation between, say, engineers in a factory, the driver of an engine and his fireman, and other ordinary people, would probably hold the attention of children more closely than the impersonal voice of a commentator. I agree that if a subject can be explained by the actual conversations of people on the screen the film comes to life in a natural way, which it can never do when dependent on the voice of an invisible commentator.

However, there are difficulties confronting the producer who

wishes to introduce such 'direct dialogue' into a factual film. First, it is obvious that a lucid and continuous, or almost continuous, description of a subject cannot be expected from the normal conversation of characters on the screen, and any attempt in this direction would result in extremely unnatural and seemingly unnecessary chattering. Secondly, there have been numerous examples of brief dialogue scenes interspersed with a commentary, and, in the majority of cases they have, at least in my opinion, failed to be convincing, and have added nothing to the realism of the film.

There is a good reason for this. When one presents ordinary people on the screen and directs them skilfully going about their daily tasks, they do appear natural, but immediately one attempts to make them talk the results are embarrassing for all concerned. The factual or educational film-maker excels at producing impersonal material, but too often he is inexperienced in handling human beings and bringing them into prominence. Everything is all right whilst they are driving trains, ploughing fields, or operating machines, but when they are called upon to 'stage' a conversation, artificiality creeps in. There is a forced heartiness, or a calculated casualness, obviously over-rehearsed.

In addition, for reasons of economy or convenience, these very brief bits of dialogue are often dubbed on afterwards, the speakers having been filmed turning slightly away from the camera to avoid the necessity for synchronizing lip movements, and the general effect is poor. Of course, certain people do respond well to good direction, and, even without previous experience, speak naturally on the screen, but the majority are seen to most advantage performing their normal duties in silence.

One way out may be to employ professional actors to represent the characters who ordinarily would be speaking about or describing their work, but the result would lack authenticity, and there would be difficulty in doubling parts so that the professional takes the place of the engine driver, coal miner, cook, or whoever is involved. Whilst, therefore, agreeing that dialogue would help to bring educational films 'to life', I feel the commentary is more suitable for teaching purposes—less distracting, and certainly easier to listen to.

Despite various opinions as to the respective values of sound and silent classroom films, Mr R. W. Robson, a teacher representative on the South-West Middlesex Divisional Executive (headquarters of the Educational Authority for the area) appears to voice the majority view when he states that unless a sound film has been pre-

pared as an *educational* film, with the right type of voice, faithfully recorded, it is definitely not as useful as a correspondingly well-photographed silent film, to which the teacher can give a suitable commentary, with a voice to which his pupils are accustomed, and which can obviously be suited to the background and mentality of the class.

Mr Denis F. Pike, of Triptons Secondary School, Dagenham, suggests that when an otherwise excellent film is spoilt for teaching purposes by its commentary it should be projected silent, whilst the teacher takes the place of the original commentator. He states that he has tried this method several times with great success.

'Really forceful sound teaching films will only be made', says Mr Stanley Reed, of the Water Lane Secondary Modern School, E. 15, summing up teaching opinion, 'when sufficient finances are forthcoming to enable direct-recorded films, employing natural sounds, to be made.' Many teachers whose opinion of the average educational film commentary is unfavourable are enthusiastic about the introduction of this type of sound, which, they declare, considerably enhances the realism of a film. Sounds heard on a railway track, at sea, the sound of a harvesting machine, animals at the zoo, all *add* to the educational value of films.

The general opinion seems to be unfavourable to the inclusion of any sound other than *natural sound*, and it is emphasized that the combined use of music and overloaded commentaries make films particularly unsuitable for children within the lower intelligence groups, the very pupils to whom film, with its vivid visual presentation, should be of especial value.

Consideration of the silent film raises again the question of captions, and although I have discussed this earlier from a producer's viewpoint, I will here deal with it from the teacher's angle. Captions for the educational film demand more attention than they have been given in the past. One school of thought considers they are unnecessary, but the majority of teachers feel there is much to be said for their inclusion. Many classroom films being silent, and likely to remain so, there is need for a certain number of captions, worded in good English, simple lettering and layout being of the utmost importance.

Teachers are emphatic that captions should be displayed on plain backgrounds, and not superimposed on fanciful patterns or pictures which tend to divert attention, and also to cause eye strain. Oral testing of children has proved this point, and the need is stressed for script printing, without flourishes to capitals. Mr W. G. Moore

points out that captions should be explanatory, but short, and very simply phrased. He says that in the C and D Streams, thirteen to fifteen age-group, there are children who often have great difficulty in reading captions, whilst some pupils find them difficult to follow unless they are restricted to two or three words.

In general, teachers favour captions which are composed of a single sentence, and believe that they should be self-contained and never broken up and divided by scenes. Care must be taken to suit language to the group for which a film is intended, and captions should never be facetious or rhetorical. Each should remain on the screen long enough to be read and understood by the *slowest readers and thinkers* of the group.

Summarizing the general essentials which characterize a good teaching film, teachers state that it should have a clearly-defined aim, and that all irrelevant material, however photographically desirable, must be eliminated. Over-elaboration of detail and monotonous repetition should be carefully eschewed. One central aim should characterize the film, and it should be coherent and planned so that each sequence follows naturally from the last. The whole film should propound a reasoned argument, so that children can clearly understand the points being made. Teachers are agreed that the most useful films are those made for specific groups and arranged to meet the needs of specific ability ranges. Films are useful to teachers only when they can be fitted naturally into the school syllabus. There are topics common to most schools for which a number of short films would be invaluable.

An interesting point is made by Mr Stanley Reed. 'Teachers', he points out, 'can play a considerable part in tackling the problems of film appreciation, and raising standards of taste. If films shown in schools are well-photographed, and competently produced, children will be able to comprehend something of the factors which go to the making of good films, and they will be able to apply their knowledge in the public cinema as well as in the classroom, and eventually, with critical faculties awakened, children may cease to adopt the general practice of soaking in films in cinemas without attempting to analyse them.'

Certain general principles are laid down by teachers for the treatment of subjects. Broadly speaking, they feel films should normally portray only scenes in which *movement* is the essential factor. Still scenes, they say, are better studied on the epidiascope or film strip. Such essentially static subjects as, say, buildings, do not lend themselves to the film medium, and teachers are quick to remark that

merely moving the camera down, up, or across a distant landscape does not create movement.

It is a matter for debate whether the actual script should be written by a film professional or by a teacher. Opinions vary, from the views stated by G. Kitson-Clarke and others that teachers themselves should be the writers, to those of Mr Stanley Reed and others, who make the point that teachers should not be encouraged to prepare treatments or write scripts. Mr Reed feels that teachers' aversion from the commercial interest film, with its facetious commentary and raucous background music which refuses to stay in the background, has been carried too far, and resulted in many recent teaching films being unattractive and lacking in cinematic interest.

The remedy, to his mind, is for the script to be written by a professional possessing both film training and imagination. Teachers should advise at all stages of production, but Mr Reed makes the point that they should 'have limited powers of interference'. He says that the inclusion of an occasional word which children may not understand is far less important than the fault of dullness. On the other hand, film-makers need to appreciate that new techniques adapted to educational needs must be learned. Mr Reed suggests that one solution to the general problem would be to train teachers in film-making so they would then be able to collaborate with other specialist teachers in the making of specific films. 'Both script writer and teacher-adviser would then speak the same language.' He realizes that this would be a development which would take time to become common practice and so, until such a procedure is possible, he advocates the writing of scripts by professionals.

Mr Reed's view may appear somewhat unorthodox, for many teachers believe that the influence of the teacher should be paramount, but his great experience in the use of visual aids for teaching both juniors and children in secondary modern schools, combined with the fact that he has acted as teacher consultant on the making of films for the Electrical Development Association, gives weight to his remarks. The subject is controversial, and demands much thought, but my opinion is that the script should always be written by a writer associated with the production unit which is to make the film, in close co-operation with a teaching authority.

Regarding the subjects considered most suitable for classroom films, teachers are agreed that geography, nature study, and science can be admirably presented, and the need for continuous experiment is emphasized.

Geography teachers hold clearly defined opinions on essential re-

quirements, and the need for correct geographical emphasis. For example, a film purporting to show the influence of the Nile on Egyptian life, states the *Report on Geography Teaching Films* (B.F.I. Pamphlet, 1948), should devote its attention largely to irrigation, and not to the ruins of ancient temples. Mr Denis Pike, whose subject is geography, comments that many hundreds of miles of celluloid classified as 'geography films' are nothing more than 'animated picture post cards'. He states that two films made by GBI exemplify what is needed in greater quantity—Margaret Simpson's *Latitude and Longitude*, and *Day and Night*, which really get to grips with subjects particularly suited to cinematic representation.

Mr Pike suggests several subjects for production: 'The Monsoon'; 'Glaciers and their Work' (where time-lapse photography would be invaluable); 'Great Circle Navigation'; 'Isotherms'; ('what schoolboy', asks Mr Pike, 'ever really grasps this subject?'); 'Map Projections'; and 'Tides'. It is interesting to note that some of these subjects have already been filmed by educationalists in France.

Many teachers stress the need for more nature study films. 'If possible', states Mr W. D. Evans, 'nature study teaching films should be in colour, giving the relative sizes of the objects on each frame, and they should be short, lasting from one to five minutes each, illustrating or demonstrating a particular point or subject.'

Regarding science, Mr Pike suggests that small schools, lacking apparatus, would find films presenting experiments in physics, electricity, and chemistry of great advantage. He also says that dramatized lives of scientists would help teachers to arouse interest in their pupils. He cites *Rontgen's Discovery of X-rays* (in the series 'The Passing Show') as a particularly good example of what is needed.

Some teachers feel history offers one of the widest fields of all, and that customs rather than campaigns, topics rather than reigns, should be the primary concern. Opinion tends to be divided on the most valuable types of history teaching films. Some favour productions composed of old prints, plates, manuscripts, and whatever else museums can offer, whilst others declare that this approach produces dull films. Others again suggest that dramatic representations might be made of events such as 'The Gunpowder Plot', 'The Great Fire and its after-effects', and 'Raleigh Introduces Tobacco', but many declare this is just what should be avoided. This viewpoint is particularly strongly held at the higher levels of education. Anything approaching a fake (theatrical representation), it is declared, must be avoided. It is suggested, however, that historical films based on authentic documentation and research, such as *Scott of the Ant-*

arctic, or the Russian *Fall of St Petersburg*, might well be shown to give background knowledge.

It is agreed that historical films need to be based on authentic research, authentic sources, and authentic use of background detail. Mr Pike's suggestion that short sequences from commercially released historical films might prove of great value in the illustration of lessons should be noted, but there are teachers who will oppose his advocation of the introduction of excerpts from *A Tale of Two Cities*, *Robin Hood*, and *The Private Life of Henry VIII*. The average 'costume' picture possesses little, if any, educational value, and might well give an entirely false impression of historical events and characters.

Teachers are divided on the question of using films to assist in the teaching of English. One cannot expect film to offer an alternative to a concentrated study of literature, but it has been suggested that by the showing of such subjects as *Hamlet* and *Great Expectations* interest can be awakened in the original works. In any case, film will be a means and not an end.

An interesting experiment in written composition was recently made at Longford Secondary Modern School, Feltham (Headmaster—Mr L. G. Bryant; master in charge of visual aids—Mr R. W. Robson). It was conducted by members of the school staff, and by Mr L. G. Marsh, Educational Adviser of Pathé British Instructional Films. The film used was one of the series, 'What Happened Next?' made by that company, which begins to tell a story of a policeman interrupting a burglar whilst he is opening a safe, and aims at *stimulating written expression* by asking the pupils to complete the unfinished episode on paper. The film stops as the policeman arrives at the door, and the burglar, trying to escape through the window, finds it is jammed.

At this point, without instruction of any kind, the scholars were told to write down the end of the story as they thought it might be. In all some 140 children, from the A, B and C Streams, took part in this experiment, and the results were summarized by Mr Robson.

The A Stream children gave good accounts of the story, extremely imaginative, with a variety of endings. There was no noticeable improvement upon their usual standard in either the length of the essay, or in the vocabulary. In other words, children normally good at written composition came out well. In some cases, spelling, punctuation, and handwriting were below the usual standard, possibly because ideas came easily, and attention to such matters as spelling suffered accordingly.

In the B Stream, the less able members of this group wrote longer and slightly better compositions than usual, obviously because ideas were provided for them, and had not to be thought out. There was not the depreciation in handwriting and spelling noticeable in the case of the A pupils, although, of course, they were normally of a lower standard in this group.

The chief fact noted among the C Stream children was that their work was much more imaginative than usual, and the quantity was greater. There was evidence of deeper interest and greater enthusiasm, and a greater sense of reality. The visual stimulus had obviously resulted in more appreciation of action here, and this, calling for a more liberal use of verbs, resulted in an improvement in sentence construction.

To conclude briefly: the use of the film acted as a stimulus to the imagination, this being especially valuable to the more backward pupils, as it resulted in a freedom of language that is rarely in evidence in the average composition lesson. The approach by film would not, at this stage, appear to be particularly valuable to the abler pupils, but well worth using for those of lower mentality. Experiment on a broader basis and over a longer period is clearly desirable, to provide more accurate data upon which to form conclusions.

Other subjects required by teachers include many branches of art and handicrafts—demonstrational films explaining processes in bookbinding, engraving, lino-cutting, pottery, weaving, and so on, with large explanatory close-ups to reveal the methods of experts at work.

Teachers are enthusiastic about the use of the animated diagram. It is, they say, a method with the greatest possibilities and might with advantage be more frequently employed. They emphasize the need for simplicity. When subject-matter compels a diagram to be complicated, it should be built up, step by step, from simple beginnings, otherwise the child, and often the teacher, will be bewildered. When words have to be added to pin-point parts or places they should be faded in and out, and not suddenly thrown on the screen. Information should at all times be cut to a reasonable minimum, and teachers would prefer lengthy diagrammatic treatment of a process to be divided into two parts rather than condensed into one which is overloaded with details and labels. Above all, diagrams must move smoothly, and excessive white background should be avoided, for not only is it trying to the eyes but it tends to exaggerate any flicker which may be created by the projector, or which sometimes is due to faulty camerawork.

The Film Strip. We have studied the film strip from a production angle, and now re-introduce it from the teacher's standpoint. Teachers, generally, are enthusiastic as to its educational possibilities, and they emphasize that colour should be employed wherever possible. Still pictures, says Mr G. Phillipo, are a valuable aid to teaching, and more stimulating than drawings. Every school, says Miss M. M. Lightfoot, should possess a very full store of strips for use in connection with every type of lesson. One of the great advantages of the strip is that it occupies very little space, and is convenient to carry. Moreover, if dropped, it does not break as would a lantern slide. It is also very cheap to replace when damaged or lost.

As we have seen, strips have already been found invaluable in teaching such subjects as geography, nature study, and history,but teachers complain that photographic drawings introduced for the last two subjects have often been poor, though the standard of diagrams is usually very high.

Film strips should be incorporated into the orthodox teaching curriculum, and made to suit a given plan of study. Occasionally, the curriculum should be adapted to include suitable *available* strips; this method is general practice, and is likely to remain so until production increases. Future production, teachers say, should be made only under their guidance or on the advice of expert educationalists.

Teachers feel that a film strip should not be presented to children as a form of 'treat'. A few carefully chosen frames should be used as illustrations at each lesson, thereby avoiding overloading the children's minds, as well as ensuring that the strip does not lose its freshness in subsequent lessons. A lesson involving the film strip often takes the form of, first, a general verbal introduction to the subject; then a period in which the pictures are projected, the teacher questioning the class about them, and indicating special points to remember; then the children write descriptive notes, or answer questions based upon the pictures shown.

Even when a film has coherence, and tells its own story efficiently, teachers require adequate notes, which should deal with the material actually contained in the film, and not with extraneous or partially irrelevant matter.

Teachers say the notes should be concise, with important points clearly defined. Miss Lightfoot, discussing film strips, states that every strip might well be accompanied by a short resumé, giving the title of every frame, and, where desirable, a set of notes also. Otherwise many teachers may be discouraged from using this aid if there are no facilities for viewing the pictures privately, and also for fear

that the intelligent pupil might ask questions which cannot be answered promptly. I would add that all the teaching notes, both for films and strips, which I have had an opportunity of reading, fulfil all these requirements.

Before I summarize conclusions reached by teachers on this subject, I am going to include two brief contrasting descriptions of their activities in Wales and Ireland. Great progress is being made in the former, and there are numerous plans for development via the National Film Institute of Ireland.

EDUCATIONAL FILMS IN WALES

Educational authorities in North Wales are expected, in the near future, to adopt schemes for the provision of projectors in practically all schools, to enable the showing of films to become a regular part of the curriculum. Although many Welsh rural villages receive an occasional visit from a C.O.I. mobile film unit, they seldom have a cinema, and educationalists feel that projectors in schools in these areas are essential.

Wales seems unanimous about the advantages of films in education, although the priority, for the moment, appears to be in secondary schools. Cardiff was one of the first education authorities to use cinema projectors for school instruction, and films in general use cover scientific, historical, and general subjects, and are drawn from a well-stocked film library. Cardiff high schools can call on a projection staff and two operators at any time, and all the city's new modern schools are to be equipped with film strip and sound projectors.

In Merionethshire, a special sub-committee has been appointed to report on the question of providing projectors for all schools in the area. The Rhondda has film strip projectors in all its secondary schools, and a sound projector is in circulation from school to school, with a library of some 200 films. Pontypridd invested in silent film projectors some years ago, and has had an organizer for visual aids for the last nine years.

Carmarthenshire schools buy their own film apparatus, aided by grants from the education authority, and a number of Cardiganshire secondary schools have film strip projectors. Pembrokeshire has about twenty silent and two sound projectors, the latter being available for adult and evening classes. The Caerphilly and Gellinger areas have many schools equipped with film strip and sound projectors, and in Aberdare eight secondary schools have film equipment.

Monmouthshire has accepted the principle of providing visual aids in its schools, and is carrying out a fixed policy of grants to implement it. Most of its secondary schools and a number of primary schools already possess equipment. Amman Valley Grammar School and Ammanford Mining and Technical School each have an epidiascope and film-strip projector, and various other education authorities in both North and South Wales have arranged demonstrations with a view to early installations of equipment.

EDUCATIONAL FILMS IN EIRE[1]

Classroom. The past two years have seen a steady growth in the use of the classroom film in Irish schools which is most apparent in technical and secondary schools, about 40 per cent of which are now equipped with silent or sound projectors. In the case of primary schools, only very limited use is being made of the educational film because of lack of projection equipment.

The early tendency to approach the film only in terms of its entertainment value, with little or no appreciation of its potentialities as an educational medium, has been curbed. Through courses in film technique for teachers, the National Film Institute of Ireland has done much to bring the educational potentialities of film before the teaching profession, many teachers who have attended those courses having taken up the idea, hence the steady development. Financed to a degree by the Department of Education, the National Film Institute has built up a substantial library of 16-mm. educational films which is the main source of supply for schools.

An interesting health campaign through film is conducted annually for schools by the Department of Health. Through the use of mobile projection units simple health films dealing with such subjects as teeth, tuberculosis, diphtheria, eyes, personal hygiene, etc., are shown to the children, and a doctor or nurse attends to give a short talk. These shows are continued throughout the school year.

Adult Education. The National Film Institute has four mobile projection units engaged almost entirely in showing educational films to adult audiences. In the late autumn, winter, and spring months, in conjunction with the Department of Agriculture, educational film shows are organized for Young Farmers' Clubs in all parts of the country.

During the same period health film shows for adults are given in

[1] Information supplied by the National Film Institute of Ireland.

parochial halls by the Department of Health. The mobile units which serve the schoolchildren in the daytime take on this work at night. Extensive use is being made of the educational film by the Irish Red Cross Society in their pure water and general Red Cross organizing campaigns. The County Dublin Libraries Committee organizes every year a series of film shows for adults in the different library premises, which are well attended. The films are of cultural, documentary, and background education types. During 1950, a number of Irish hospitals have used film to a considerable degree in the training of nurses.

Production. There is no organized film production in the Republic of Ireland and the few educational films that have been produced are the result entirely of individual effort. In the main they are the work of amateurs and represent an effort to meet some teacher's individual needs of the moment.

To conclude this symposium of teachers' opinions, I cannot do better than quote two letters which admirably summarize the general attitude towards classroom films, and how they should be used:

The first is from Mr E. W. Cole, County Secondary School, Leatherhead, who writes:

'. . . Despite the considerable work done by individuals, the use of the film in the classroom is in its infancy because: (1) sound machines are heavy and a degree of technical skill is necessary; (2) good rear projection screens are only just coming into use (1949); (3) blackout and ventilation problems seem financially unsolvable; (4) most schools have no apparatus or financial provision for hiring films; (5) the best type of teaching film (length and content), is far from being agreed upon; (6) visual aids have been isolated as a subject instead of being merged into teaching technique. May I recommend to you items (5) and (6), as I think that the number of real teaching films existing is very small.'

The second letter is from Mr S. T. Lewis, Stonebridge Primary Boys' Schools, London, N.W. 10, and Publicity Officer of Willesden Teachers' Visual Aids Committee:

'Films may be divided into two groups; those whose aim is to teach one definite piece of knowledge—e.g. the GBI *Latitude and Longitude* film, and those whose scope is wider—e.g. the GBI film *Mediaeval Village*. With the former group, the film would be used at the beginning of a lesson with but few introductory remarks. After the film, questions would be invited to clear obscure points, and

questions asked to ensure that all the important points had been understood. The film would then be run through a second time. Later a test would be used to see that the knowledge had been retained, and any necessary revision done with the aid of film strip or diagram.

'With the second group, the film would be used as a means of summary and recapitulation at the end of a series of lessons. The class would be warned what to look out for (it is essential that the teacher should see the film before use), and a test would be given to conclude the work and ensure its effectiveness.

'I find that the films which fall into the former group are usually more useful in that they can more easily be adapted to a particular scheme of work, whereas the more discursive film may deal with aspects of the subject which are irrelevant to those in hand.'

In general, teaching opinion tends to favour the use of films, sound and silent, and film strips, primarily because interest is aroused from the start, and every child in the class has an equal opportunity to see the illustrated subject clearly.

When teachers are able to view all films *before* introducing them into the classroom they will be able to plan how to use them to the best advantage, and local film libraries and efficient catalogues are now doing much to make this possible.

MESTON TRAINING COLLEGE

Chapter IX

THE CHILDREN'S CINEMA

THE FILM industry is divided into two spheres—theatrical and non-theatrical; the first designed to entertain, the second to educate and inform. They run parallel but rarely merge, except, I suggest, in the mind of the child cinema-goer. Statistics show that many children visit cinemas two and three times a week. In Britain alone more than four and a half million have developed the habit, and see both 'U' films unaccompanied, and 'A' films when taken by adults, a harmful practice. No child under sixteen may see a film marked 'H' (Horrific). It should be borne in mind that no films shown in commercial cinemas, whatever classification is given to them, have been made for children, and it might well be argued that films suitable for adults cannot also be suitable for children. Consider, then, the large part film plays in the life of a child to-day. He not only visits the cinema regularly, but is often confronted by films in the classroom.

Do fictional films increase or decrease his interest in, or otherwise influence his attitude towards, classroom films?

Is the teaching power of the factual film weakened by familiarity with fascinating fictional subjects?

Are a child's critical faculties developed or numbed by constant cinema-going?

Does he become increasingly appreciative of technical qualities in the cinema, which, in turn, develop his powers of perception, and so enable him to obtain maximum knowledge from classroom films?

These are some of the questions uppermost in the minds of educationalists when considering the influence of the commercial cinema. It has been said that the good done by classroom films is undone by adult fictional films, but maybe that is going too far. My opinion is that cinema-going (to see films made for adults) develops superficial sophistication, distracts the young malleable mind from essential things, and tends to create a wrong sense of values. The habit, universally regarded as an escape and a pleasant form of relaxation, results in mental restlessness, both in young and old. The

wits of a child cinema-goer are often over-sharpened, whilst his intellect remains dull. Again, I would stress the fact that films which have *not* been made for children cannot usually be suitable for them, and *all* films made for commercial release are designed for adult audiences. A rather common mistake on the part of critics of the cinema who have children's welfare at heart is to point to sensational and questionable subjects, and denounce these as being extremely harmful, whilst they appear to overlook the fact that many films on fine themes for adult consumption are also *entirely unsuitable* for young folk, because they present stories and situations which, though neither sensational nor questionable, should not be witnessed by children at all.

It is because the cinema is so very accessible that the problem has arisen. In this respect, it is similar to radio, whose programmes frequently contain items which should not be heard by children but which are listened to by vast numbers of them. The cinema itself exerts a tremendous appeal. To enter it is to enter a world of glamour which is irresistible. This is not the moment to discuss the good or bad effects of films on adult audiences, but to discover if, in the mind of the child, there is a link between the cinema and the classroom film, and whether the former helps or hinders the work of the latter. As I have said, I feel sure the cinema-going child is having his mind shaped or misshaped and his experience widened *prematurely*. He has become familiar with situations and types of people of which he should be ignorant. The cinema does not claim to contribute to his mental development, but merely to provide him with popular entertainment, whereas the classroom film provides opportunities for visual education of a kind never before possible but does not seek to entertain him. He would, I suggest, be better without the constant and powerful influence of the cinema during his schooldays, primarily because its function is to cater for his parents. If, then, he is to be *entertained* by films at all, as distinct from being educated by them, he should obviously see programmes which have been specially produced for him.

This vexed question of the influence of film on the young mind has been occupying the attention of educationalists, parents, youth leaders, and others for a number of years. In the thirties, two Reports on Children and the Cinema were prepared by Committees appointed by the League of Nations, and the British Film Institute, the latter organization having held a conference in 1936 to study the subject. Since then it has published lists of films it considered suitable for children. The Home Office is concerned with seeing that

children are protected against undesirable films, but, as mentioned earlier, judging by the numbers of children in audiences watching A films, some tightening up of regulations would seem necessary.

The obvious though difficult solution of producing special films for children came from within the industry. Even in the late twenties numbers of children's programmes were organized, mostly on Saturday mornings, by the larger groups of cinemas, whilst there were also some private ventures which deserve mention. Among them were the Bath Children's Cinema Council, started in the early thirties, the Children's Cinema Society, formed at the Everyman Cinema, Hampstead, in 1934, and in 1936, Odeon Theatres established a special department to organize Mickey Mouse Clubs, which were highly successful. Programmes at these early shows usually consisted of a feature film and several cartoons and interesting short films, but it was soon realized that the number of available films really suitable for children was very limited, and that unless subjects were made especially for them the programmes could not possibly continue. The war interfered with the development of the project generally, but had it not done so I imagine a certain number of programmes would have continued, consisting mainly of the always popular Western films of which there seem to be an endless number.

The first important plan for the production of films specifically for children was undertaken in May 1944 by the J. Arthur Rank Organization. It established, within the framework of Gaumont-British Instructional, Ltd, a Children's Film Department under the direction of Mary Field, the function of which was both to arrange entertainment film programmes from existing subjects, and to produce new films. The hope was that in time the new films would make up the entire programmes so that no films made originally for adults would be shown. All the programmes were for showing to the Odeon and Gaumont-British Junior Cinema Clubs, which had been launched in 1943.

The Department aimed at providing films for children of seven to fifteen years (the majority being between eight and twelve). In their first lease of life these subjects are reserved for the Saturday Club programmes, but afterwards become available in 16-mm. for hiring to children's gatherings unrelated to cinemas. Owing to the constantly changing audiences as children grow beyond the age group, all or nearly all the films can be re-issued to the Saturday Clubs in about three years. Thus the life of a children's film is a long one. The Department issued a Report in 1948 which stated that it is not possible to draw a strict line of demarcation between enter-

tainment and education in its most broad sense, but that an entertainment programme is *not* the place for direct education, nor for *direct* moral instruction.

These shows can and do educate in an indirect manner, as we shall learn, and the moral values of the feature films are strong though usually indirect. In this connection, it is interesting to note the words of Sir Michael Sadler in his introduction to a Report on *Moral Instruction and Training in Schools*. 'Moral training is the direct duty of the home, the church, and the school. On the other hand, indirect moral instruction is aided by watchful care over conduct, intimacy with good example . . . the effect of honest intellectual work upon the moral outlook and judgment.'

The Children's Film Department's Report declared that the organization was 'peculiarly suited to give audiences of children intimacy with good example, both of child and adult behaviour', the productions being planned to provide opportunities for meeting such examples. When the Department began its work in 1944 it could look to no previous experience in this country for guidance, for the only research on the subject of children and entertainment films which had hitherto been attempted was concerned solely with child reaction to productions designed primarily, if not exclusively, for *adult* entertainment. Moreover, children had become accustomed to certain types of subjects, in particular, as I have said, the 'Western', in which violent action and the inevitable chase were the high lights. 'Children tend to be conservative in their film-going', commented the Report, 'and prove hostile to any violent change in the pattern of their entertainment.' Therefore, since the children pay to see the Saturday Club shows, the department found it necessary to proceed slowly, and attempt a gradual rather than a drastic approach to the re-forming of taste, and to provide the best possible type of entertainment that children could and would accept during the building up of their faculties of film appreciation. It is for this reason that production work in recent years has been, to a large extent, experimental. The following table shows the production output of the Children's Film Department to 1950.

FILMS PRODUCED 1944–50

Long Stories	21
Short Stories	6
Serials (episodes)	27
Interest Films	9
Magazines	67
Nature Films	27

Travel Films	16
Cartoons	7
Community Singing	6
Total	186

Slowly and almost imperceptibly, the content of the films has changed. For example, the pattern of the contest between good and evil has been unobtrusively dropped, and the conventional chase is slowly disappearing. The Report of 1948 draws attention to the fact that, within the three years 1944-7, the Department has found it possible to produce films of *achievement* rather than of *conflict*, and subjects, moreover, in which the direct appeal to the eye rather than to the mind—involved, for example, in a chase—can be omitted. It has also been found possible to substitute for the conventional serial film (which creates suspense by terminating at a crucial moment, and so compels the cinema-goer eagerly to await next week's instalment), a series of *self-contained* episodes.

In brief, throughout these first years, the immediate aim of the Department has been, in the words of the 1946 Report, 'to make certain that in every Club programme there shall be at least ten minutes of good formative entertainment that will encourage in the audience a sound and positive attitude towards life', and to work out a long-term policy aiming at providing 'good, healthy feature films, serials, and shorts, about children and for children, filmed in Great Britain, in the Empire, and in foreign countries'.

The Executive of the Children's Film Department comprised three sections: Representatives of the Odeon Junior Clubs, the Gaumont-British Junior Clubs, and the Production Department. It attended meetings of the Advisory Council on Children's Entertainment Films, at which it submitted, for criticism and/or approval, plans for future productions.

The Production Department, until autumn 1950 when the making of children's films ceased, for reasons I shall refer to in due course, consisted of the Director, Miss Mary Field, the Production Adviser, Mr H. Bruce Woolfe, a Scenario Editor, Assistant, Research Officer, Production Manager, and Business Manager. The Department never produced, but always employed various commercial companies to do so from scripts written or approved by it. In order to ensure variety in programmes and also to discover filmmakers with the ability to make films for children, the Department allocated its subjects to a wide number of concerns. In 1947, for

example, there were fourteen companies producing, of which but three were subsidiaries of the J. Arthur Rank Organization.

Owing to its ever-increasing experience and as a result of constant research, the Department possessed a fund of knowledge about children and the cinema, and was, therefore, qualified to guide producers on the necessary lines of approach. Films were checked at every stage of production by members of the Department, all details being approved or revised, from the casting, designing of sets and costumes, and the nature of direction, to the selection of music. Thus, comments the Report of 1946, 'unity of purpose is achieved without monotony of style'.

Some of the scripts were written within the Department, but when film-makers preferred to write their own the work naturally had to be fully approved before production could commence.

The Advisory Council was an independent body, composed of representatives of national organizations unconnected with the film industry, and concerned with the provision of leisure-hour facilities for children. It was established in September 1944, under the chairmanship of Lady Allen of Hurtwood. It was composed of representatives from the Home Office, and the Scottish Office, an observer from the Ministry of Education, and representatives from the Association of Education Committees, the National Union of Teachers, the British Broadcasting Corporation, the Library Association, the British Film Institute, the Christian Cinema Council, the National Association of Boys' Clubs, the National Association of Girls' Clubs and Mixed Clubs, the National Council for Mental Health, the National Federation of Women's Institutes, and the National Union of Townswomen's Guilds. For production purposes the Council was divided into four reading panels, and when a possible story was found by the scenario department it was submitted to one of these. If the script was approved, it was circulated to *every* member of the Council and discussed at the next meeting.

In 1946 three Conferences were held by the Council, with local education authorities, teachers, magistrates, psychologists, and others interested in child welfare, to discuss the question of children's films. At each Conference delegates, members of the Council, and members of the Production Department attended a Children's Club show, and then proceeded to discuss the programme. The Conferences took place in London, Glasgow, and Liverpool in January, May, and November respectively, and the Production Department obtained a great deal of valuable criticism and advice,

which, states the 1947 Report, has helped to shape future production policy.

Members of the Council frequently attend Cinema Club shows to observe the children's reactions, and also view films produced by the Department before these are passed as satisfactory for release; they attend conferences abroad to discuss children's films and visit other production centres.

Such visits abroad have proved highly instructive. For instance, Norwegians evinced great interest in British progress, and, in particular, in the proposal to organize an international library of children's films. Mary Field, attending the Prague Film Festival of 1946, lectured to educationalists on the British experiment, and showed to an audience of children and adults three films produced by her department: *A Visit to the Swans*, *Jean's Plan*, and *The Voyage of Peter Joe—Episode* 1. During a visit to Sweden to address film societies and teachers on behalf of the British Council, Mr Oliver Bell showed a 16-mm. version of one of the 'Our Club Magazines', which was enthusiastically received, and the film was left with the British Council Office in Sweden for further showings.

According to official figures, in 1948 there were 1,644 children's clubs or matinées and their number must be somewhere near 2,000 today (1950). Total membership in 1948 was approximately 896,000 children, and is now likely to be around 1,500,000 a week. The matinées are non-profit-making, and the usual price of admission to the Saturday shows is sixpence. After the cost of opening the cinemas, lighting, heating, projection, and staff has been met any surplus has gone towards the encouraging of Club activities, and future production.

The Cinema Clubs form their own local committees, to organize and control activities, and advise on programmes to be shown. They usually include the local Director of Education or his representative, a youth club leader, representatives of local organizations concerned with child welfare, and elected representatives of boys and girls belonging to the Club. Each Junior Club has its special committee of children, its members acting as leaders and organizers of Club activities, making themselves responsible for the orderly behaviour of children coming to the shows. These child committees, states the Report of 1948, provide a valuable link between audiences and cinema managers, and give much useful help concerning children's reactions to the programmes.

The Clubs meet every Saturday morning at 9.30 a.m., and the performance ends at 11.45 a.m. The first quarter of an hour is

usually devoted to community singing, some Clubs even possessing their own choirs. The film programme commences with a cartoon, and then the audience repeats in unison the Club promise, each Club having a promise which directs attention towards the principles of good citizenship. Next, a short talk is often given on a subject of local, national, or world interest by an expert or eminent personality, maybe, a scientist, an explorer, a medical officer of health, or a member of the local corporation, who aims at interesting the children in civic and current affairs. After the talk comes a short documentary film, followed by the main feature, and the programme ends with an episode from a serial.

The Clubs work in close co-operation with the Royal Societies for the Prevention of Accidents, and of Cruelty to Children, and slogans embodying their principles are flashed on to the screen between the films. The importance of hygienic behaviour is conveyed by means of stills and cartoon films, and the children are also instructed in the courtesies of everyday life.

Club activities are by no means confined to the Saturday morning film shows, but provide numerous facilities for interesting leisure-hour pursuits, covering such subjects as art and literary competitions, whilst subsidiary clubs for stamp collecting, swimming, football, physical training, dancing, and riding classes, have been organized by individual cinema managers. One club even has its own newspaper. Some produce plays and pantomimes, and there are a number of club orchestras and concert parties.

An important part of Club activities is the organization of visits to places of interest—local historical buildings, art galleries, museums, and zoos. Members are also shown the projection rooms of their cinemas, and learn the part the projectionists play in the presenting of a sound film programme.

But perhaps the most important function of the clubs is the fostering of interest in people living in other countries, and so increasing international understanding. The Saturday shows include many films taken abroad with this object. During the war, numerous friendships were formed between Dutch refugees at Coventry and Doncaster and members of the cinema clubs in those towns. Whenever possible, a two-way traffic in children's films is arranged so that other countries can learn of the British way of life. Already films have been shown to the clubs here of life in Australia, Basutoland, Canada, Czechoslovakia, Lapland, Norway, Poland, Portugal, Rhodesia, and U.S.S.R. Most of them are in the 'Magic Globe Travel Series', which employs the attractive idea of transporting

two English children, as if by magic, to other lands, where they are shown the sights by children living there. A possible criticism is that too much material is packed into each film, which might confuse young minds, but undoubtedly the series is of the greatest value, and gives geography a new meaning.

Considerable interest is taken in the British experiment overseas, the Department's productions having been sent regularly to Australia, Canada, and New Zealand, and, in the winter of 1947–8, a series of programmes was shown in Holland, whilst various selected films have been presented in Austria, Belgium, Czechoslovakia, Denmark, Egypt, France, Hong Kong, Italy, Malaya, Norway, and Sweden. *Bush Christmas* has been shown in Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, France, Germany, Holland, Iceland, Lebanon, New Zealand, Norway, South Africa, Sweden, Syria, and the United States. It is of the first importance that this pioneering work of providing films for children should have been blessed with the vision to develop the international aspect and thus widen the experience of the rising generation in so admirable a way.

A brief survey of the wide variety of films produced by the Department, and the nature of the subjects, will illustrate how children have been catered for. Under the category of films of achievement was a most successful story, *The Little Ballerina*, telling of a poor London girl who wanted to become a famous dancer, and how, despite poverty and numerous misfortunes, she ultimately achieved her ambition. The film includes a ballet sequence featuring Margot Fonteyn. It is a lovely and inspiring story which appealed to children everywhere, and to adults, too, when it was shown with other children's films for a season at the Tatler Cinema in London, as an experiment to discover the extent of the appeal of such films when made available to the public. It also afforded parents an opportunity to see the kind of films shown to their children at the Cinema Clubs.

In complete contrast was the adventure subject *Bush Christmas*, made in the Blue Mountains of Australia, also of feature length. An outstanding film, its treatment fulfils one of the most important aims of the Department, which is to set stories against authentic backgrounds in various parts of the world, and in these natural settings to capture on the sound track the actual noises, bird songs, and other sounds of the locality. *Bush Christmas* tells of five children who spent their Christmas tracking down horse thieves—excitement and fun in unusual and beautiful scenery.

Different again, and immediately appealing to young people was

Circus Boy, produced with Bertram Mills's Circus on location, and showing how a nervous boy overcame his timidity when called upon to perform a difficult trick in the circus to save a friend who has had an accident. Of the short films, *Tom's Ride*, one of the first to be made, was extremely popular. It is the tale of a boy who wanted a bicycle, found a note-case containing enough money to buy one, but was persuaded by his sister to return it to the police station.

Escape from Norway was a re-edited version of a Ministry of Information film made during the last war, and concerns the escape of some Norwegian fishermen during the German occupation. The dialogue is in Norwegian, and is *retained* in the children's version, an English descriptive commentary being superimposed to explain the story. The success of this method of recording the voice of an English narrator over the sound track of voices speaking another tongue led to other films from abroad being adapted. Amongst these were *The House Goblin*, a Swedish film telling a folk story in verse, and *The Elephant and the Skipping Rope*, originally Russian, which has proved successful with younger children.

The serials are always eagerly awaited. As mentioned earlier, the first subjects followed the traditional pattern, and ended by leaving the audience in suspense until the next episode. This kind of treatment was superseded by a series of self-contained subjects, and one of the most popular has been *The Voyage of Peter Joe*, in six adventures, containing a lot of slapstick comedy. Each subject lasted about twenty minutes, and all were written by Marriot Edgar.

In contrast to the fictional films are the factual subjects, and one of the most popular regular items in this category has been *Our Club Magazine*, each issue containing several contrasting subjects of general interest—ranging from glimpses at various industries and little-known crafts to visits to, say, a model aeroplane club, a farm, museums, art galleries, and places abroad.

The popularity of the 'Magazine' is largely due, suggests the 1948 Report, to the children's pride in their 'very own film', and to the ever-changing content of real-life happenings. Recorded preferences taken over eight magazines show that animal items are the most popular, and that sports come next, closely followed by such subjects as how to make a cricket bat and a study of a model railway. Items like stamp collecting and a visit to a book exhibition have been less popular. Nevertheless the 'Magazine' series continued 'to foster a liking for a wide variety of interests, and to satisfy all tastes'. A second magazine series has been launched, called, 'How, What, and Why', presenting scientific subjects in a simple and popular

form, which should be received with enthusiasm. Both the series of magazine films link the cinema to the classroom, for though presented in entertaining fashion they possess high educational values. This is an important point, for instead of distracting young people by confronting them with stories, situations, and activities intended solely for adults, these special programmes combine factual and fictional subjects for audiences of school age and so become interrelated to classroom films in the young mind.

Usually, the magazine is followed by short singing films presenting songs arranged and conducted by Leslie Woodgate. The music accompanies coloured cartoons, and includes such numbers as 'Rio Grande', and 'Oh, No John'. The singing films made so far have been 'frankly exploratory', to discover whether the children like taking part in the show. Some of them have been too interested in the cartoons to join in the singing immediately. Usually they all begin to sing after the films have been running for a little while.

Then there have been nature films, which, like the magazines, are both entertaining and educative. *Tales of the Woodland*, a series of six episodes written by Enid Blyton, tell of the friendship of three children with a naturalist, John the Woodman, who explains to them many fascinating things about the world of nature in fields, woods, ponds, and streams. A one-reel story, *Sally Sparrow*, related the adventures of a sparrow in the London Zoo, with a commentary in rhymed couplets, and proved only moderately successful, the poor little bird being too small to make an impressive screen appearance. Also, the rhymed commentary resulted in some children sending in criticisms which indicated how much more attentive young audiences are to sound than some educationalists suppose.

A number of subjects in the famous 'Secrets of Nature' series, which were produced by Gaumont-British Instructional for adult audiences, were re-edited and fitted with new commentaries written for children. They included *A Home of the Seabirds*, describing bird life in the Farne Islands, and *Ravens at Home*, showing how these birds build their nests and rear their young on narrow cliff ledges. The adapting of these subjects for children proved completely successful.

Cartoon films were also specially produced. The first one to be made for children was called *Robbie Finds a Gun*, the story of a rabbit who is always getting into trouble with his catapult. Although the action is much slower than in cartoons for adults, and is not in colour, it is very entertaining, and was well appreciated.

Experience has shown the need for logic and accuracy in script-

ing and production, and for bright photography to compel attention. Regarding length, it has been found that, however entertaining a seven-reel feature may be, it tends to be too long for child audiences, their attention being inclined to wander. It is considered that one hour is the maximum period for a children's feature film.

Considering the numerous difficulties confronting the Department in its pioneer work the whole achievement is remarkable. There has been criticism, most of it quite unjustifiable though fully expected here as in any new courageous development.

The Children's Film Department is fully conscious of the need for continued research into every aspect of the matter, and in order to obtain knowledge of children's likes and dislikes, it began, in 1947, to carry out research on the films already produced. This experimental work was based on an analysis of reports by managers of Gaumont and Odeon Cinemas, on personal observations of members of the Department, the Advisory Council, and other skilled observers, and, when possible, on comments by the children.

Reports from 580 cinema managers organizing the Clubs contained a wealth of information on the preferences of children. Generally speaking, they demand exactitude and realism, both in regard to plot detail and behaviour of characters. They have intense pride in films specially made for them, and their chief dislike is for lengthy speech and dialogue.

An analysis was made of seventy-nine Reports on the series of slapstick comedies, 'The Voyage of Peter Joe', and proved that the success of the series was due to the plots being easy to follow; to pleasing characters (the main character and hero being a child); to plentiful action and a minimum of dialogue; and to the reappearance of the same characters in successive episodes, which gave children an opportunity to get to know them.

A 1950 Report published by the Children's Film Department states that in 1949 it developed its policy of making films overseas, and in the first half of 1950 produced story films in Rhodesia, Germany, and the Austrian Tyrol, as well as four short 'Pen Pictures' in Denmark, all intended primarily for English-speaking audiences.

This Report also contains the Department's answers to seventy-eight questions forming an elaborate questionnaire which was distributed by UNESCO with the object of discovering the effects of film on the child. Many of the questions have been covered in the previous pages of this chapter, but I should like to refer to one which asks: '*Why should special films be produced for juvenile audiences?*' The Children's Film Department gives the following answer:

'Children between the ages of seven and adolescence do not understand the plot, motivation, and characterization of adult films. Their eyes may be amused by action on the screen, but their brain remains passive. A child appears to identify itself with very few adult actors, and is, therefore, unable to become an active participant in an adult programme. A passive attitude is to be deplored. . . . There is very little concrete evidence that children are harmed morally by adult films, though some sensitive children are disturbed by violence on the screen.'

I do not share these views, for I have reason to know that a very large number of children *do* understand the plot, motivation, and characterization in adult films, and that their brains do not always remain passive. Many girls and boys definitely identify themselves with characters on the screen, dress, speech, mannerisms and behaviour being imitated from quite an early age. I also hold the opinion that children are harmed morally by constantly seeing adult films, and that even in cases where no moral harm is done, the practice of cinema-going (to adult programmes) by children plants seeds in their minds during a most critical period, gives emphasis to superficial and unimportant aspects of life, diverts attention from fundamentals, and creates precociousness and restlessness.

It appears from the Report of the Departmental Committee on Children and the Cinema (H.M.S.O., May 1950, 3*s*.) that my views are not shared by those who formed the Committee (before whom I gave evidence on the subject). Children will continue to visit cinemas to see 'U' films unaccompanied and 'A' films when taken by their parents or guardians, but not to see 'H' films. Responsibility for taking a child to 'A' films is left to the discretion of the parent, but how the parent can possibly know what an 'A' film is like until he or she has seen it has never been explained by any of the experts who express approval of existing regulations. As parents are unlikely to see programmes twice, first alone to judge whether 'A' films are harmless, and, if so, a second time with their children, the law is both illogical and dangerous, and it is by no means clear to me why all those in authority who have been probing into the question for many long months shut their eyes to an obvious fact. A film graded 'A', meaning it is unsuitable for children, does not become suitable when the children are accompanied by adults, many of whom take their youngsters merely because they cannot leave them at home, the question of suitability or unsuitability of programmes never entering their heads.

The fact that so many children enjoy adult films is evidence that

the dividing line between the mentality of the adult and of the child cinema-goer is very thin, and it is worth noting that preoccupation with the question of the influence of film on the child can make one lose sight of the fact that numerous 'A' films exert just as bad an influence on the parents as on their children.

It will be seen, then, that the building up of children's cinemas is imperative, and we were all looking forward to a considerable extension of the work of the Children's Film Department. Instead, owing to the need for economy, the J. Arthur Rank Organization, its parent company, decided to cease production after autumn 1950. The reason is that production costs of children's films are high, many of the basic costs being the same as for adult film production, whereas returns are so much lower that no comparison can be made.

All children's films so far produced have been subsidized by the J. Arthur Rank Organization. And yet, if the entertainment tax of ¾*d.* which is taken from every 6*d.* admission ticket to a children's matinée was remitted and put back into production, the whole movement—clubs and films—could be self-supporting, states the 1950 Report. Unless, therefore, an alternative plan is evolved for producing films for children, the Saturday morning programmes will be composed of selected films made originally for adults, supplemented from time to time with children's films already in existence. If this be so, children will be seeing adult films both at their own matinées and when they visit cinemas with or without their parents during the week—an unsatisfactory state of affairs which is stirring all concerned with child welfare to devise practical ways and means of restarting film production for children.

A most interesting proposal was then outlined by Mr Frank A. Hoare, Chairman of the Association of Specialized Film Producers, suggesting the formation of a body to be known as the Children's Entertainment Films Trust. In a memorandum on the subject which Mr Hoare states is not a definitive policy statement, but simply an attempt to formulate some of the proposals now being made, he states the aims of the proposed organization:

'(*a*) to devise ways and means for ensuring a steady and continuous flow of production of new Children's Entertainment Films;

'(*b*) to handle the selection and re-editing, where necessary, of existing films which might be suitable for children, including films from foreign countries;

'(*c*) to provide a steadily increasing library of children's films suitable for all ages from, say, 7 to 14 or 15 years;

'(*d*) To arrange suitable facilities for the distribution of these

films so that all exhibitors running children's performances would have an equal chance to obtain them on fair and reasonable terms;

'(*e*) to make appropriate arrangements for the international exchange of children's entertainment films.'

Mr Hoare states that there is ample evidence of a very general acceptance that it is through co-operation within the cinema industry that the production of entertainment films for children and their wider distribution to exhibitors should be effected, and there is also evidence that the industry is willing to accept responsibility for tackling the problem. Mr Hoare points out that as this is, in the first place, a question of film production, it is difficult to see how any body other than the industry itself could effectively deal with it.

The proposed Trust would, therefore, be a trade body associated with an Advisory Council similar to the one which has worked with the Children's Film Department, and the Trust, with the aid of an expert production panel, would make executive decisions regarding films required and the allocating of them to suitable production concerns. Thus the Trust would not be a producing organization, but would utilize the facilities existing in the industry, as so many sponsors do to-day. Mr Hoare states that the production of such films cannot, except over a long period of time, become a financially successful operation, and so the Trust would require finance to enable it to function on a non-profit-making basis. I will quote in full the paragraphs in the Memorandum dealing with finance:

'The question of the availability of funds both for administration and for the production of films is, therefore, one of immediate importance and urgency. There seems every reason to suppose that some money might be made available out of the Film Production Pool[1] which is being established as a result of the Eady Plan for revision of the incidence of Cinema Entertainment Tax. It has been suggested by the President of the Board of Trade that a percentage of the "Pool" might be set aside for special purposes such as the making of children's entertainment films which cannot under present conditions recover production costs from distribution receipts.[2]

'The question of what amount of money (if any) might be avail-

[1] Since known as the British Film Production Fund.

[2] A Provisional Committee has since been established composed of the four Trade Associations—Association of Specialized Film Producers, British Film Producers' Association, Cinematograph Exhibitors' Association, and Kinematograph Renters' Society, and the Chairman is Mr. J. Arthur Rank. The scheme proposes that 5 per cent of the total British Film Production Fund be set aside for the production of children's entertainment films, and; in the summer of 1951, the Company was registered as The Children's Film Foundation Ltd., based on the above proposals.

able from this source remains to be settled by the Trade body which will administer the Pool, but whatever it may be it cannot of itself provide more than a nucleus. It has been stated that the number of cinemas running children's matinées is not less than 2,000 and that the total weekly attendance at these matinées is not far short of 1,500,000. If this is so, and assuming that the normal admission charge is 6*d.* per child, there is a gross revenue which will under the new scheme be free of Entertainment Tax of nearly £2 million annually. On the agreed basis of $\frac{1}{4}$*d.* (one farthing) per seat, the Pool will receive about £80,000 from this source. These figures must, of course, be regarded as estimates and may not be precisely accurate.[1]

'One suggestion is made that the Government should give financial aid, in view of the national importance of the problem involved, and that the formula might be a contribution from the Exchequer on a "pound-for-pound" basis related to any sum made available from the Pool.'

Here I should like to pay tribute to Mr Hoare's tireless efforts in seeking a solution to this most difficult problem.

For a plan devised to operate *within the framework of the film industry*, it seems to me admirable, and as the welfare of children is the primary consideration, the proposal, with or without modifications, should be welcomed by all who share the view that it is only with the full co-operation of the industry that the scheme can be made to function.

However, I am not altogether happy about any solution *which is designed entirely within the industry as it is at present constituted.* Naturally, in so far as production is concerned, the producing section of the industry must necessarily be involved, but *not*, I feel *quite in its present form*, the trouble being that, for various reasons, it is far from healthy, and just as much in need of replanning as is the production of films for children.

Meanwhile, there are two main points in the Memorandum to which I should like to refer. First, the statement that the production of these films cannot be financially successful (save after a long period), so that the Trust would have to be non-profit-making, needs, qualifying, I think, for this does not mean producers would work without profit. They would, as hitherto, need to find the making of films for children commercially worth while, and although the margin of profit might not be as large as some would wish, there would *be* a margin. Indeed, a production concern could not other-

[1] The figure of £80,000 was the estimate for the first year of the scheme. The actual amount received was £60,000.

wise continue. Therefore, the phrase 'non-profit-making' should be read as referring only to the Trust itself. Producers would know this, of course, but those outside the industry might not.

The second point is the suggestion that further finance should come from the State. Whether the present part-sponsoring of feature films for adult entertainment by the government through the Film Finance Corporation is desirable is not our concern here, but I feel the less governmental aid given to the children's film movement the better for the *ultimate* success of this type of production.

I consider that the great pioneering effort of the Children's Film Department was handicapped from the outset by being created *within*, and *being dependent upon* a commercial film industry geared for production and distribution *of entirely different dimensions*.

I suggest the following alternative approach: that the production and distribution of *all* such films, though of theatrical content, should be reborn *non-theatrically*, and released only on 16-mm. in halls of all available kinds, but never in cinemas.

What the non-theatrical movement has achieved, against great odds, in so many specialized fields, it can certainly repeat for children. Such shows would create miniature children's cinemas distinct from the matinées now held in mammoth theatres which seem to me to be both out of proportion and out of character for the purpose. Furthermore, I visualize this work becoming interrelated to such an organization as the Educational Foundation, with entirely separate administration, of course, but working under the guidance of an enlarged central Advisory Council and production panels, which are equally concerned with education by film. *For the education and the entertainment of children are inextricably interwoven*, and if the latter is left entirely in the hands of the commercial entertainment industry, divorced from those catering for educational film needs, two activities are being made out of what is fundamentally one mission.

All films made for children should be organized, I suggest, by a central body responsible both for their education and their entertainment. Under such a non-theatrical plan, the help of local authorities would be enlisted for securing village halls, town halls, church halls, and school halls for the shows—these being far cheaper to hire and run than large cinemas. I can think of no reason at all why entertainment tax should then be extracted from the admission fees paid by the children.

Along such lines I visualize a non-theatrical 16-mm. children's cinema being organized. One, moreover, which should, through a

more economical approach to production and exhibition, eventually prove self-supporting. But if children's film needs continue to be supplied as hitherto, they are likely to remain financially unsound, and the ultimate result may well mean depriving children of a continuous flow of educational and entertainment films.

There has been no comparable production of films for children in other countries, save in Russia and America to which I will refer in a moment. Denmark is beginning; France has made a few; and in Czechoslovakia there has been a development of puppet films. A coloured puppet subject *Spalicek*, made by Trnka, has roused enthusiasm in adults as well as children for the perfection and fitness of its execution, and *The Queen of the Ice*, by the Zlin director, Karel Zeman, is claimed as a rarity, for glass figures are used which, it is said, move more naturally than puppets made of wire, rags, wood, or rubber. Created by Professor Brychta, the figures were manufactured in the famous Czechoslovak glass industry centre of Zelezny Brod.

In August 1946 the Children's Film Library was formed in America. It arranges for the distribution, or rather the re-distribution, of films considered suitable for children by preview committees representing various women's organizations. About 2,000 cinemas show these films to an audience of around six million. Usually the shows are Saturday morning matinées as in Britain, but some areas give afternoon shows at times which do not conflict with the regular adult performances. The ages of children for these shows in America is eight to twelve. Perhaps the main difference is that the children's cinema clubs here include in their programmes a number of informational shorts, films, and lectures, whereas the American programmes consist almost entirely of fictional features.

The greatest development outside Britain is in Russia, where the production of children's films is well organized, for youth has always a special place in the Soviet cinema. Productions of the Moscow Children's Cinema, set up in 1936 during the second Five-Year Plan, are planned on the same scale as films for general release. Though not, of course, necessarily about young people, the subjects are designed to appeal to children, and a number of them have proved suitable for the general public, too. They include Vladimir Legoshin's *The Lone White Sail*, based on a story by Valentin Kataev; E. Penzlin's adaptation of a Jules Verne story, *Mysterious Island*, made in 1941; and A. Gendelstein's biography of the poet Lermontov, made in 1943.

Among the most famous productions to come from the Moscow Children's Cinema are Mark Donskoi's Maxim Gorki trilogy, *Childhood of Maxim Gorki* (1938), *Out in the World* (1939), and *My Universities* (1940), with the theme of the discovery of talent among the oppressed and misunderstood. The themes of Gorki are dear to Donskoi, and his productions for the Children's Cinema invariably assert his belief in the dignity of man and his love for humanity. Donskoi's attitude towards the production of children's films is illustrated by his assertion that, in working for children, the best results are obtained by making them understand what is at stake in a production as a whole. For Donskoi, as for other of the directors of films for the Children's Cinema the purpose of the medium is to deliver a message, assert principles of behaviour, to possess social significance.

Various of the national republics of the Soviet Union are now engaged in organizing children's studios on the Moscow model, and newsreels and documentary films for children are being produced. At the end of 1946 the children's newsreel, *Pioneer*, celebrated its fifteenth anniversary in its 200th issue. A new documentary, *The Story of our Children*, has been made, dealing with the activities of children and youth organizations all over the Union, during the war years, and in the present period of reconstruction.

The number of cinemas specializing in the showing of children's films is growing yearly, and there are mobile units equipped with portable projectors to show children's films in remote areas, just as adult films are circulated where no cinemas exist.

The production of children's films is another milestone in the history of film, the last two marking the coming of sound and colour, and the next to come will be the merging of film and television.

So far as Britain is concerned, it was in a 1947 Report of the Children's Film Department that the high purpose of the Department was expressed:

'. . . to present the children with stories and characters worthy of their attention . . . to offer them a positive attitude to life rather than a passive one, a realistic yet imaginative view of the world rather than a celluloid convention entirely divorced from reality.'

If that great purpose is to be achieved, as surely it will, those privileged to carry it through should not have to be dependent on conditions governing a producing and distributing industry geared for a purpose entirely unrelated to the special requirements of cinemas for children.

Chapter X

WHAT OF THE FUTURE?

THROUGHOUT this book I have treated education in its widest sense, embracing visual aids for all ages and purposes, but in summing up the present position, and looking into the future, I propose to deal mainly with education in the school, and what is true of visual aids in the classroom applies in general terms to teaching by film in most other spheres. I shall examine the evidence, for and against film as a teaching aid, and, where necessary, point to barriers which are retarding progress.

An impartial critic would, I think, agree that there is now sufficient evidence to show film is capable both of supplementing the work of the teacher and of presenting certain types of subject-matter more vividly than any other known means. He would agree, too, that if correctly employed, film does not supersede the teacher, nor weaken personal authority over pupils. By employing it correctly I mean not only expertly introducing a film into a lesson so that it becomes an integral part of it, but learning how to prepare film and projector to reduce delay and distraction in the classroom to a minimum.

Some teachers consider that the very nature of film makes it a disturbing factor, however skilfully prepared and projected, but there is unanimous praise both for film strip and epidiascope, which, in some ways, are more suitable teaching instruments than film. First, they say, they are less distracting in character. Secondly, the subject is described by the teacher *at a tempo which he or she creates and controls*. Thus they are visual *aids* in the best sense of the term, enabling the personality of the teacher to predominate.

Film cannot be adapted. The content and speed of the silent film govern the teacher's description of it. The mechanical nature of the medium can undoubtedly introduce a disturbing note into the classroom beyond the control of the teacher, possibly resulting in his losing his grip on the pupils, though this is more likely to occur with films which are 'forced' into lessons than when they are interwoven into a subject as a result of advance planning.

A questionnaire was circulated in 1949 to obtain the considered views and requirements of teachers throughout the country, and 450 replies were received, summarized below to assist these conclusions. Approximately 75 per cent of both primary and secondary school teachers are using films in the classroom, and a third of the projectors in primary schools and more than half of those in secondary schools are for *sound* films. It is generally agreed that a teaching film should occupy about a third of lesson time, whilst a background film should occupy about two-thirds of the lesson in primary schools, and slightly more than half in secondary schools. There is agreement, too, that the close-up, once believed unsuitable in school films, is effective for all children save the very young, and that sudden changes in camera distance cause no bewilderment in young pupils, but unusual camera angles are considered unsuitable. Slow-motion photography is acceptable, but speeded-up action is frowned upon, especially for showing to infants.

About 85 per cent of primary, and 90 per cent of secondary teachers consider captions are useful in silent films, whilst more than 60 per cent think they are also of value in sound films, but many hold the view that most children are unable to follow visuals and commentary simultaneously, and so the balance of opinion is against the continuous commentary but in favour of natural sound.

Although most teachers realize the several financial and technical difficulties involved in colour film production, the demand continues, especially from those working with young children. 'Penny plain, tuppence coloured' is a very old saying, but serves to remind us that colour has always been more expensive than monochrome—and when applied to film-making, is three, and sometimes four, times as costly. Consequently, until the technical position has been rationalized, those who desire colour on the classroom screen must be prepared to pay for it—and wait for it, for processing can be a lengthy business.

Filming in colour demands maximum lighting for interior work, and a lot of help from the sun on exteriors, or results may be alarmingly uneven, which raises a point of special importance regarding colour teaching films. In the planning of entertainment subjects the usual aim is to make colour the star—to exploit it to a maximum degree—settings and costumes being designed with this end in view, and often with a complete disregard for realism (this excludes exterior scenes, of course). Consequently, any unnatural or garish effects are passively accepted. Colour in the schoolroom, however, has an entirely different purpose, and unless values are correct, and

variation reduced to a minimum, the colour film can seriously misrepresent the natural scene.

The demand should, therefore, be for *natural* colour, rather than for colour 'at all costs'. Attractive it may be, but unless correct values are presented, monochrome is of greater value for teaching purposes. Perhaps the most economical colour system at present is Kodachrome, widely popular with both professionals and amateurs, for ciné and still purposes. To-day, a number of production companies employ 16-mm. Kodachrome, and the results are usually very good. Until recently, Kodak Ltd, carried out all Kodachrome processing in this country, and the great increase in production tended to overload the laboratory and created delays. Now, however, the London firm of Furneaux-Weber, Ltd, by arrangement with Kodak Ltd, is also processing Kodachrome, and the general position with regard to delivery has become easier. As a rule, however, not more than about fifty prints can be obtained from the *original* colour film.

Pending future developments to overcome this drawback, such as the possible introduction of new improved colour processes capable of supplying an almost unlimited number of prints at reasonable cost and without undue laboratory delays, one can be well-satisfied with Kodachrome, if one is willing to work directly in 16-mm. One method of overcoming the difficulty that only a limited number of prints are obtainable from the first colour film is to shoot a subject twice, or even three times so that one hundred or one hundred and fifty prints can be obtained. This is a solution, of course, only if the producer can be assured in advance that so large a number will be required. The basic cost of duplicating or triplicating the actual camerawork is not heavy, and the extra time devoted to filming every scene several times whilst on the spot would be counteracted by the producer's ability to supply a sufficient number of prints to fulfil release requirements, and so enable him to recover his costs with, it is hoped, a reasonable margin of profit.

I have no intention of playing the role of prophet, and visualizing the shape of schools to come, with classrooms resembling power station control rooms, and pupils surrounded by televised, tele-coloured, and stereoscopic visual aids broadcast from central stations. Instead, I prefer to express the hope that technological advances will be secondary to spiritual and cultural progress, and that human values will not be lost sight of in this era of mechanical miracles. The film is admirable as a supplement, but as in the case

of the broadcast lesson, or television, its *content* during projection is beyond the teacher's control (I use the word teacher in the wide sense to include instructor, demonstrator, and lecturer, in all fields of education).

On the production side, there is a fundamental difference between film and television, for the latter photographs and projects *simultaneously*. Consequently, a subject to be televised needs to be planned to the last possible detail, for as the scenes to be captured by the cameras are those which will actually be seen by the viewers (except when film is televised, of course), there can be no leisurely editing of results—no retakes. Perfection depends on constant rehearsing and planning.

Another difference is that people being televised cannot be taken from a variety of contrasting angles which will be assembled afterwards to create a unity. Instead, all movements have to be planned so that the characters themselves change their positions from, say, a long to a fairly close shot, within range of the camera, whilst a close-up might be obtained by a character walking out of the range of the first camera into the range of a second camera so placed to show the person in close-up without any interval between the shots.

To elaborate on the special technique demanded by television, I cannot do better than quote Andrew Millar Jones, Producer, B.B.C. Television Service, writing in the British Film Academy magazine: '. . . there is little likelihood of television influencing the production of films, whose chief characteristics are technical perfection and flexibility. It is more likely, at least in its present stage of development, that television will be influenced by film production. Already film is frequently introduced into plays, but this device to increase flexibility, it is generally agreed, should be used with moderation. To use it excessively would be to forgo television's most important quality—*immediacy*—a quality which has enabled the theatre to hold its own with the cinema. Like the theatre, television is alive. The scenes appearing on the screen are known to be happening at the moment of their being seen, and therefore there is an inherent dramatic element in them which is absent from film.'

That *immediacy* can indeed bring new values to classroom and lecture hall, but apart from the limitations in production described above the problem of how to dovetail televised lessons into teaching schedules will need a great deal of working out for its solution and, in some respects, there may be no solution. Even if it could be solved, any lesson, lecture, broadcast or televised event emanating from a central source and reaching millions simultaneously, whether

pupils or their parents, is open to criticism by those who fear the growth of standardized educational and information services. As it becomes widespread, television will certainly be a social force rivalling film in the field of entertainment, but whether it will or can enter school and college remains to be seen. One point is clear in regard to its effect on film. By eliminating distribution and going straight to the viewer, television gains a tremendous advantage, enabling it to command the attention of vast audiences at home, bringing them subjects which, though lacking the carefully built-up analysis contained in film, are live.

But just as film can never replace the teacher, television will not, in my opinion, replace film in the classroom, wherever else it may supersede it—for the best form of visual aid is created only by careful preparation, and it is after filming has been completed, and the scenes are being assembled in the cutting-room, that the educational film becomes invested with its real value. The final result is not 'alive' in the television sense of the word, but it presents subject-matter which is *larger than life*, because the camera lens serves both as magnifying glass and microscope, dissecting processes and places, and presenting them from countless angles which, well assembled, become a vivid pictorial treatise.

Although I have previously described the origin and functions of the National Committee for Visual Aids in Education, and the Educational Foundation for Visual Aids, this final survey would be incomplete if I did not summarize the progress to date of these interrelated organizations, for practically the whole educational film movement in this country revolves round them.

Briefly, the National Committee represents teachers and local education authorities, and is responsible for visual aid policy in schools, and for the determination of film and film-strip requirements, whilst the Educational Foundation is concerned with production and distribution.

One of the first steps taken by the Educational Foundation was to gather all possible information about existing films for the compilation of a comprehensive catalogue, it being found there was no central source of information, and, apart from removing the difficulties experienced by teachers in learning what films existed, such a catalogue prevents overlapping in subject-matter; that is, the research into and production of new films on subjects already covered.

The first four volumes of the catalogue cover secondary schools, the next two are for primary schools, and the seventh for nursery and infant schools. The catalogues give in some detail the contents

of teaching films, but background subjects of general interest which are not specifically classroom films are not so fully described.

Suitable films made by commercial producers unrelated to the Educational Foundation are also included. The preparation of these catalogues, though an enormous task, is merely the beginning of a great undertaking. Next comes the need to make them available to all schools, and, at the same time, evolve methods for increasing the sale of educational films to enable production to be placed on a far more reliable basis. To achieve this end, local education authorities must be induced to *buy* copies instead of hiring them, otherwise *speculative* production, as described in Chapter V, is unlikely to meet with success.

The Educational Foundation reached the conclusion that every local education authority should possess its own film library, of reasonable size, capable of supplying schools in its area with prints of films in everyday use. No such local library, however, could be expected to acquire every teaching film, and so, to provide a central source containing all subjects which qualify as teaching films, and also to stimulate the sale of prints to local libraries, the Educational Foundation has established its own film library. Some local authorities are, of course, too small to consider forming such libraries, and in these cases it is hoped they will work in conjunction with the nearest in their respective areas. The policy of 'a film library for every local education authority, and a projector in every school' was adopted by the National Committee, backed by the Minister of Education, and launched at a meeting held by the Educational Foundation in December 1948.

As far as production is concerned, the speculative approach is not meeting with much success. One would like to see the Educational Foundation supported to a maximum degree by all L.E.A.s, for its purpose is of the highest importance, and has created an approach to visual aids which is in marked contrast to the system adopted in a number of countries where educational films are financed by their governments—a system regarded unfavourably by many in this country. Future development therefore depends to a very large extent upon the Educational Foundation's success in increasing the sale of prints to local libraries, but a great deal also depends on how much or how little films cost to make, which is the producer's problem, the Educational Foundation being concerned solely with teaching values and technical qualities. Sufficient at this point to say that in the opinion of the Educational Foundation production costs depend upon the nature of each individual film, and so

must vary a great deal. That is true, but costs depend, too, on the size and nature of a producing company. A large concern cannot easily avoid making a simple educational film cost more than it may be worth, whereas a smaller concern may be able to make a longer and more detailed educational film cost comparatively little.

Is technical progress in visual aids leaving the educationalist behind? Is the content of the average educational/specialized film worthy of all the technical skill bestowed upon it? In other words, is the educationalist uncertain as to what constitutes a good teaching film, and, because of this, ready to agree to the production of some films which may be unnecessary? It is generally admitted that many classroom films are regarded as experimental, a fact which excuses, of course, the appearance of certain subjects which do not demand film treatment, or which would be more suitably presented in strip form. The medium is new in educational spheres, and still regarded as a novelty by too many. Whilst this phase lasts there are bound to be a number of films which hardly deserve a place on the teaching screen. Greater selectivity will come as the novelty wears off.

At every turn, we see the requirements of educationalists frustrated, on the one hand by projector shortage, and on the other by insufficient films. Which is the first need, or is this a vicious circle? The demand for projectors will be met eventually, though it will take time, for even at midsummer 1949, there were fewer than 1,000 in Britain's 31,000 schools. As I write, news has come through that by 1952 there may be available a sound projector costing less than £100, simple enough to be worked by those who are not mechanically-minded, but no details are to hand.

Film-makers are graded into two categories—those making features, and those making shorts. Reverting to the need to keep production costs down to a minimum without any sacrifice in quality, I feel it might be wise to consider establishing a third category of film-makers for the very special needs of the educational world—a pocket-size branch of the industry. This might indeed be welcomed by some film-makers who have found permanent employment on commercial productions difficult to secure. I visualize workers in this category concentrating solely on films which teach and entertain children, their remuneration being in proportion to the smaller and uncommercial markets for which they are catering.

I would, therefore, refer the reader back to my remarks in Chapter IX, in which I expressed some doubt about the success of any plan designed to operate *within the framework of the industry as it*

at present exists, and to my suggestion that children's entertainment films should be confined to 16-mm. in halls but not in cinemas, for this can now be considered with the further suggestion for a third category of film-makers. Systematically planned this economical approach might make unnecessary the subsidizing of production. Needless to say, there would be numerous obstacles and prejudices to overcome in seeking to establish a new 'branch' of the industry, but they would be slight compared with the *existing barriers* to the steady development of such films created by the complete dependence of the educational movement upon an industry which finds it difficult, if not impossible, to accommodate itself to such special needs.

Consider, for a moment, the publishing business, which has the good sense to grade and design publications according to their potential markets. A publisher will not produce a gilt-edged, vellum-bound tome when a pamphlet is called for. There are books of all shapes and sizes at varying costs to suit all pockets, each of good quality but some costing very little to make, others a great deal. Many pamphlets and booklets are therefore within the reach of those who could not afford more expensive editions. Although everything to-day is more expensive than ever before, it is only within the film industry one finds costs so unnecessarily high that losses recur frequently, and where all films are cast in the same financial mould. The first rule of business is to produce the highest quality for the lowest cost, but this has not applied to film production since it found its voice but lost its head. Those seeking to cater for children's education and entertainment might, therefore, take a leaf out of one of the publishers' smaller priced books, study it, and then consider the advisability of establishing a pocket-size branch of the industry, and 'miniature cinemas' for the young.

Maybe some will contend that films just cannot be made more economically than at present by existing production machinery, whatever their purpose. If that be so, then the development of all films for children is going to be very slow indeed.

However, whether educational film-making remains apart from the production of entertainment films for children (which I hope may not be the case); whether the latter films are developed by the Trust plan *within* the industry I described in Chapter IX, or by a 16-mm. non-theatrical approach on the *fringe* of the industry; or whether by any other means, let us hope that whichever is found to be the most practical system will be speedily adopted for the sake of the young people.

Visual aids constitute a new universal picture language. There may be as many as a thousand different words, in as many tongues for, say, 'tree', 'man', 'dog', each incomprehensible to nine hundred and ninety-nine races, but moving pictures of a tree, man, or dog are understandable to all. Upon this simple fact rests the power of film, over-exploited in many directions, hardly developed in others. The medium, at present largely in the grip of commercialism on the one hand, and of governments on the other, can, shaped with vision and courage, create world-minded citizens. Misshaped or frustrated, it can do incalculable harm.

Already, it has given a new meaning to teaching in school, college, university, and training centre, but beyond the classroom and lecture hall it has much to do, for there is little use in giving pupils, young and old, scholastic and specialized education if their spiritual vision remains unawakened. Film can create friendship between the *peoples* of the nations, and dispel misunderstandings born of ignorance and political intrigue by bringing millions face to face with each other, or it can heap coals on smouldering fires.

Film possesses the power to develop the spiritual life of the human race. If to-day many have lost all sense of direction and purpose, film can show them the way, and I believe it will eventually prove itself to be *the* great educator of the world.

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